*Dry Gardening in the Pacific Northwest*

# Washington Park
# ARBORETUM BULLETIN

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# Concerning This Issue. . .

Change is the topic of the summer *Arboretum Bulletin*. Here we deal with inevitable change that gardeners face: the water shortage that we experience now, as well as climate change and potentially warmer, drier growing conditions. Issues concerning water are here for the long term, and will intensify. Projections of climate change put Northwest summer temperatures several degrees higher in the not-too-distant future. Of course, the implications of both conditions are profound for all aspects of life and every sector of society. We will continue providing information needed for horticultural decision making.

Librarian Valerie Easton is one editorial board member with her finger on the public pulse. At a winter meeting of the *Arboretum Bulletin* editorial board, she explained that users of the Center for Urban Horticulture's Elisabeth C. Miller Library want more information about the effects of water shortage and climate changes. In a dynamic response spearheaded by Steve Lorton, the *Bulletin* editorial board started planning the ''dry gardening'' issue immediately.

Yet board members had different experiences with dry gardening, thus had to come to terms. We agreed that our goal would be to help readers meet the challenge of using less water in drier, hotter situations, while actually *enhancing* the quality of their gardens. But our experiences and approaches were different.

An example of different approaches was in finding a term that best describes this type of gardening. *Dry. Water-wise. Water-thrifty. Low-water maintenance. Drought-tolerant. Water-conserving. Water-efficient. Un-thirsty. Xeriscaping.®*

*Xeriscaping®* is a trademarked term for gardening that is applied to specific conditions of certain regions, so we debated the term ''drought-tolerant.'' Some argued that our winter-rain, summer-dry period is not a drought, but a predictable, natural process. Others pointed to dictionary definitions in which ''drought'' refers to *any* prolonged period of dryness. For that matter, we could see that the whole concept of water shortage is relative to the numbers of people demanding usage.

As editor, I weighed the advantages of homogenizing the terms into one ''buzzword'' for all articles. I decided to inform authors about the editorial board's debate, but encourage them to use their term of choice. After all, you will see all the terms above and more used in other books and periodicals.

We hope the result of editorial board discussion and debate helps you make your garden more cost-effective, more environmentally responsible, and more pleasing to look at and be in—with less water usage.

The *Arboretum Bulletin* itself must deal with change during this period. We say good-bye and thanks to five accomplished members of our editorial board team whose terms expire. Ken Gambrill, our rhododendron authority, is a major force behind obtaining funds for the color that graces our cover. Dan Hinkley's articles appear in this and the next issues. We've been trying to keep Dan's departure secret from him so we get all the articles we can before he finds out. Landscape architect Mary Booth has encouraged budgetary enhancements that will continue to benefit the *Bulletin*. She also writes for us, is behind volunteer appreciation activities, and will continue to be a link with The Arboretum Foundation board. Joyce Brewster, former publications specialist for the Center for Urban Horticulture, has availed us of her ideas, aesthetic choices, and editorial suggestions. Joyce will be taking on major responsibilities for the Seattle Youth Symphony. Van Bobbitt has contributed his quality approach to every issue over the last three years with his popular ''Northwest Hort Review'' in which he brings scientific findings to public awareness. We hope to hear from Van in new capacities for a long time. We also wish to thank out-going Arboretum Foundation President Dick Doss. Dick's thoughtful order provided options for expansion and *literally* gave color to the *Bulletin*.

The new editorial board members will be introduced in the fall issue. It will be my pleasure to continue letting you know about the excellent quality of volunteers in the Washington Park Arboretum.

**Jan Silver, Editor**
*The Washington Park Arboretum Bulletin*

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*Oxalis* sp. *Photo by Sigurd Olson*

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**Cover:** *A West Seattle "dry" garden, on the edge of Puget Sound, photographed by its designer, Daniel Borroff. The wheat-colored grass at water's edge is* Deschampsia caespitosa. *Mid-left is purple, long-stemmed* Verbena bonariensis. *Lower right and center is* Erigeron karvinskianus, *a white flower that fades to pink. The coppery-red flowers of* Spiraea bumalda *'Anthony Waterer' eventually fade to rust. Feathery gray-green* Artemisia *'Powis Castle' is mid-left and bottom.*


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# Water-Conserving Landscapes: Desolate or Desirable?

**by Virginia I. Lohr**

*"Dry" landscapes can have the inviting and desirable traits people seek for their home gardens.*

When you think about water-conserving landscapes, what comes to mind? Do you see prickly cacti and dull gravel or concrete? Does your image contain expanses of brown grass? Do you feel hot and dusty? Plantings that evoke such desolate images do indeed require little water, but they are not particularly desirable or "user friendly." When I think about water-conserving landscapes, I imagine brightly colored flowers, shaded hideaways and cool, comfortable surroundings.

How can you design a landscape that is both water conserving and desirable? At Washington State University, we set out to find the answer to this question. We began by considering what is already known about what makes landscapes desirable, and then we looked for ways to express those characteristics in landscapes that use water-conserving techniques.

*An asterisk (*) indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum.*

We found that traits of inviting and desirable landscapes can be readily incorporated into water-conserving landscapes. Some of these involve simple or minor changes; others require more extensive modifications before their benefits can be realized. Here are some examples of what you can do to make your garden both water conserving and desirable.

You may read that water can be conserved by simply not watering your lawn. This is true; your grass will go dormant until moisture returns, perhaps from seasonal rain. Although this will conserve water, it is also desolate. One study of people's preferences for ground covers showed that people don't like brown grass (Thayer 1982); we expect grass to be green. To keep your landscape water conserving and desirable, don't let grass go dormant in the most visible and used areas of your landscape. Consider replacing high water-requiring grasses, such as bluegrass, with lower water-requiring grasses, such as fescues. Also consider reducing the size of the lawn area that you water. If the area will not have foot traffic, try alternate, water-thrifty ground covers, such as native kinnikinnick (**Arctostaphylos uva-ursi*), sea pink (*Armeria maritima*), or bishop's hat (**Epimedium* species or hybrids).

Desirable landscapes have trees. Schroeder and Cannon (1987) documented how important trees can be to the quality of residential streets. If you are planning to establish a water-conserving landscape, be sure to include drought-tolerant trees, such as Japanese red pine (**Pinus densiflora*) or golden rain tree (**Koelreuteria paniculata*). They contribute shade, reduce wind speed, and even help reduce the build-up of atmospheric carbon dioxide. Such trees

*Here, the front yard has islands of plants in a sea of lawn. Although the plants in this design have been grouped, they don't contribute to coherency. We are not sure where we are expected to go. Is it to the front door, around the side of the house, or along the edge of the bed by the sidewalk? It is not water conserving because lawn, which covers the entire area, requires heavy watering.*

*This front yard has plants grouped into meaningful and coherent units. We can see where we are expected to go in this yard: it all points to the front door. It is also water conserving because the water-demanding lawn has been consolidated into a small area. It is surrounded by low-water requiring plants that reduce wind and evaporation from the lawn.*

are important components of inviting landscapes.

People prefer properly maintained landscapes (Anderson and Schroeder 1983), so remember that having a water-conserving landscape does not mean having a landscape that you don't need to care for. Desolate, non-user friendly yards are likely to end up being neglected because you won't want to spend time in them. Even if you don't water as much as your neighbors, you still can have weeds. To keep your water-conserving landscape desirable, maintain it as regularly as you would any landscape.

Flat landscapes usually are boring. Landscapes need some form of topographic variation for people to rate them highly (Miller 1984). Use features like raised beds (berms) or terraces to keep your landscape from being flat. Berms help save water when they are strategically placed to form windbreaks and reduce water evaporation rates. Terraces conserve water by reducing the rate of water run-off. Even concrete retaining walls can add relief, and if they are attractively shaped, they can be positive elements in your yard (Cotter and Croft 1974).

Desirable landscapes have a sense of coherency and harmony (Cotter and Croft 1974). This could mean, for example, that the colors in your landscape should blend with the colors on your house. One way to incorporate this idea in a water-conserving landscape is through the material you choose as a mulch to save water; mulches can reduce soil moisture evaporation rates by 75 percent. If your house is a light blue, then bark that weathers to light gray or gravel that is dark gray will look much better than red or orange crushed rock.

Textures should also match. If your home has a rustic look, you can complement that in the garden by choosing drought-tolerant plants for summer that are loose and open, such as staghorn sumac (**Rhus typhina*) or fountain butterfly bush (**Buddleia alternifolia*). If your home has a formal appearance, then continue that feel in the garden by selecting water-conserving plants with a neat and dense growth habit, such as California incense cedar (**Calocedrus decurrens*) or germander (*Teucrium chamaedrys*).

Cluttered landscapes should be avoided. They lack coherency and give the user no sense of how to move through them (Kaplan and Kaplan 1989). An easy way to achieve coherency is by grouping plants in meaningful areas. A typical way to landscape a front yard is to lay out a sea of turf across the entire area and then to scatter several small islands (berms with trees and shrubs) throughout the sea.

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This can appear cluttered and usually requires that the entire area be heavily watered. To convert this into a water-conserving yard, turn the turf into a single large island in the middle of a sea of water-conserving trees and shrubs. It is coherent and, with proper irrigation, it uses much less water. It also keeps the grassy area open, so that it can be used for picnics or outdoor games.

There are many other ways to keep your landscape inviting while still conserving water. These landscapes require thoughtful planning, using good design principles, just as would be used for any landscape. If this is done, desirable and water-conserving landscapes are possible. We know this is true, because we have asked people what they think about them. We also have shown people a short videotape that we developed to demonstrate what well-designed water-conserving landscapes could look like (Bummer and Lohr 1989). People's attitudes were tested both before and after seeing the video. Especially after seeing the possibilities, people agree that water-conserving landscapes can be responsible, beautiful, and inviting!

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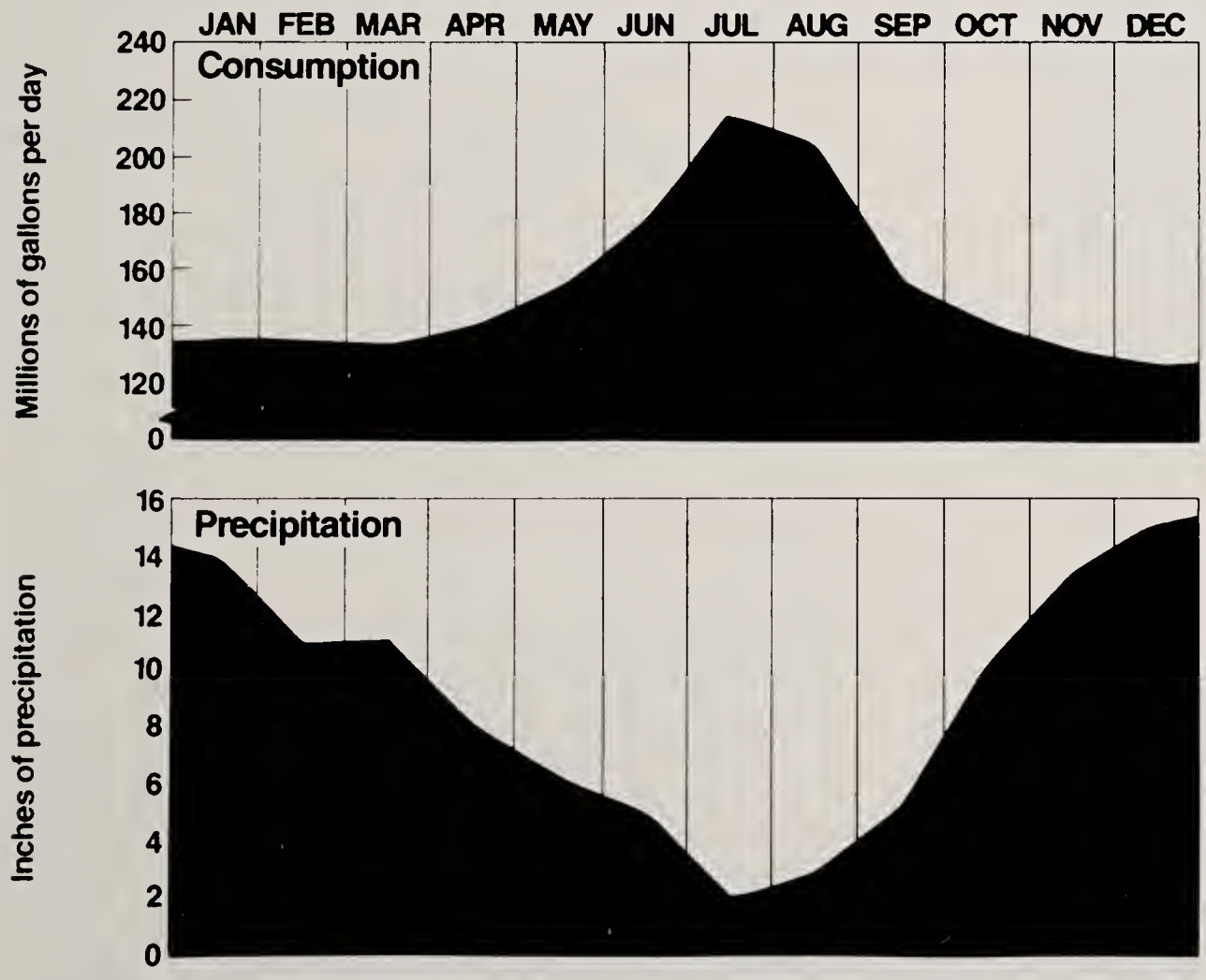
# Water, Water, Everywhere?

**by Nota G. Lucas**

Many gardeners will remember 1987 as the year of the drought. It was indeed a dry year in the Pacific Northwest—and it uncovered what may be thought of as the tip of the iceberg, as far as water supply and water-use issues are concerned.

In the service area of the Seattle Water Department (SWD)—and, indeed, in much of Western Washington—water consumption is the highest when rainfall is lowest. During the summer months, water consumption is almost double that of the rest of the year; most of this is due to lawn and garden watering. With increases in regional demand and competing uses, such as recreation and fisheries needs, reducing the summer peak has become an important objective of SWD and other regional water utilities. Demand projections indicate new supply facilities soon must be added to meet the summer peak. Improving the efficiency of lawn and garden watering is crucial if we are to reduce summer peak demands and defer building new large supply projects.




*Average rainfall in the Cedar River watershed, which is the source of 70% of water supplied by the Seattle Water Department.*

Seattle's historically low rates and abundant water supplies have provided us the luxury of not thinking much about our garden watering practices—until now. The Seattle Water Department wants to help customers *improve irrigation efficiency*—not to eliminate water use in the garden. This also can result in substantial cost savings on your water bills, especially given the higher summer rates being charged by many utilities, including SWD. What can you do? Here are the basics:

## Planning

Water use is an important factor in garden planning, just as soil texture and sun exposure are. When selecting plants, consider their water needs. The "Low Water Use Plant List" (KC 125) compiled by King County Extension Agent George Pinyuh, is a good place to start. Call (206) 296-3900 to order it. You'll find a wide variety of trees, shrubs, and herbaceous material that have modest water needs. Use of such plants can also result in lower maintenance, including less time spent watering and maintaining irrigation systems. Remember that fall planting is best, due to cooler temperatures and increased rainfall.

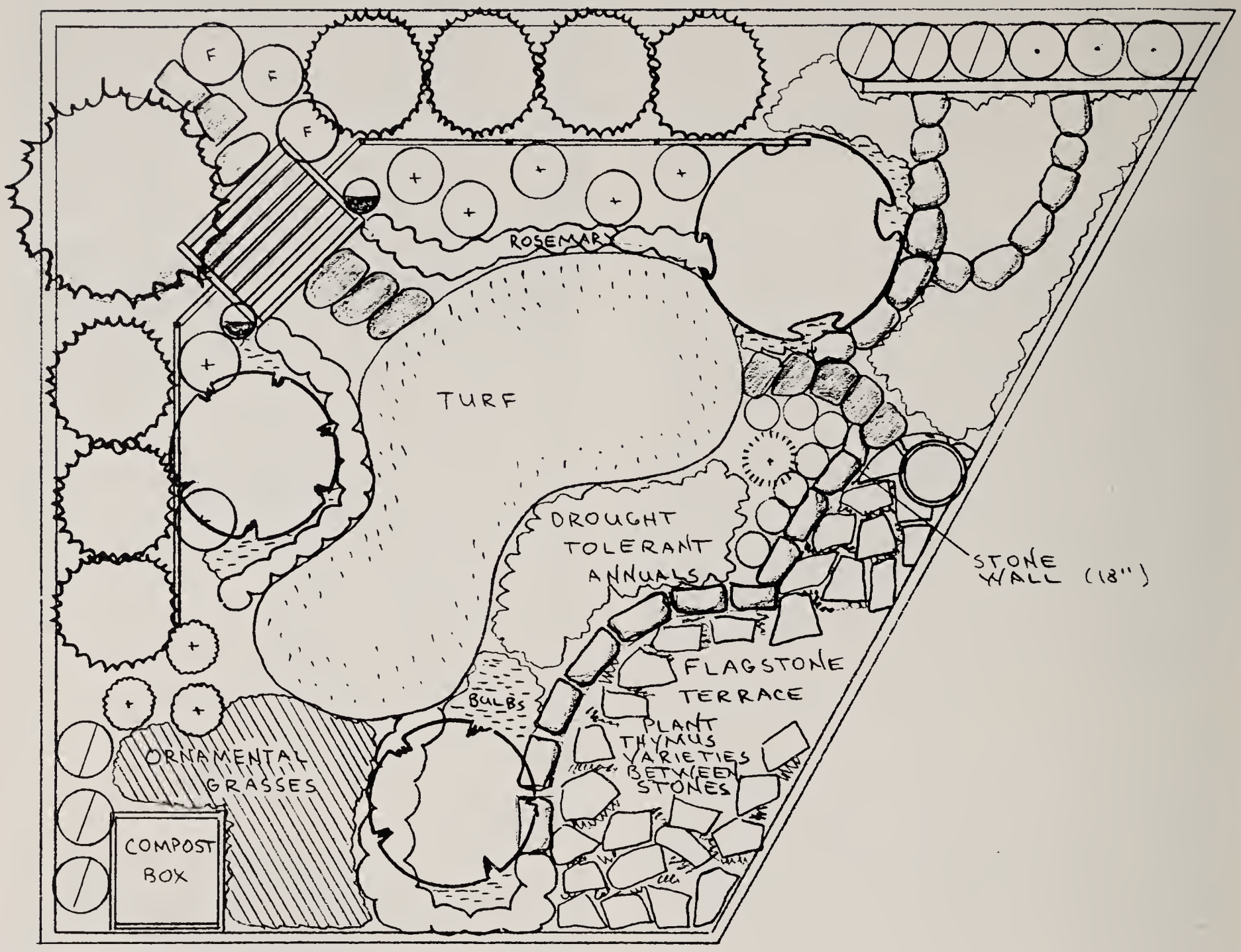
## Preparation

When you landscape, improve the soil to make the greatest impact on the health of your plants. Good soil with plenty of well-incorporated organic material is particularly important for a water-efficient garden because plant roots will be able to go deeper to find the available moisture. Develop at least 18 inches of good soil whenever possible.

## Maintenance

Use mulch to slow evaporation and to control weeds. Mulch composed of larger components, such as a ground or shredded bark type, is more effective at keeping weeds down and also does not break down as quickly as smaller types. Weed control affects water availability, because weeds will com-

# Water Conservation in a Northwest Garden




| BY SEATTLE & TACOMA WATER DEPTS & CITY OF EVERETT | | |
|---|---|---|
| SCALE 1″ = 4″ | 1-10-91 | DRAWN: PAM ROY |

## PLANT LIST

An asterisk (*) indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum.

F — *Forsythia* 'Lynnwood Gold'

*Acer ginnala*

*Crataegus laevigata* 'Paul's Scarlet'

**Calocedrus decurrens*

**x Cupressocyparis leylandii*

*Ligustrum japonicum*

*Deutzia gracilis*

\+ — **Viburnum tinus*

*Lonicera japonica* 'Halliana'

*Berberis thunbergii* 'Atropurpurea'

*Campanula poscharskyana*

*Artemisia ludoviciana* 'Alba'

*Buxus sempervirens* 'Suffruticosa'

PERENNIALS
*Dianthus p.* 'Spring Beauty', *Verbascum bombyciferum, Erigeron* 'Profusion', *Centranthus ruber, Alyssum saxatile, Aquilegia* 'Music', *Lavandula a.* 'Hidcote', *Senecio cineraria, Artemisia s.* 'Powis Castle'

*The cities of Everett, Tacoma, and Seattle, Washington, co-sponsored a low-water-use demonstration garden at the 1991 Northwest Flower and Garden show. This was the utilities' third such demonstration garden in as many years. Their mission was to promote the efficient use of water in the landscape. "Water Conservation in a Northwest Garden" was designed by Pam Roy of the Everett Parks Department, who developed a lush and attractive garden featuring low-water-using plants and only minimal turf.*

pete effectively with ornamentals for available moisture.

## Irrigation

Meeting the water requirements of plants is crucial to successful gardening. Landscaping with plants that have moderate water requirements is one key way to reduce your water needs. Even low-water-use plants require regular irrigation until they are established. Group plants together with similar water needs. Since low-water-using gardens may need supplemental water only two or three times during the summer, improving irrigation systems may be of particular interest to those whose yards require more frequent irrigation.

## Some Basics of Garden Watering

❦ Before watering, use a spade or other implement to check whether the soil is dry several inches down. If the soil is moist, don't waste your water. This isn't necessary every time, but you do need to get a feel for what is happening in your own environment in different weather conditions.

❦ Water lawn and garden beds separately since their water requirements differ.

❦ Investigate the use of low-volume irrigation—such as drip or soaker systems—for landscape plants; this can result in water savings of as much as 50 to 60% over a conventional sprinkler.

❦ Water early in the morning or late in the evening.

## Consider Several Key Factors for Turf

❦ Your lawn needs *no more than one inch of water per week*, even during the hottest part of the summer.

❦ Your sprinkler can be tested by placing several empty tuna cans in random locations to catch the water, then watering for 15 minutes. Measure the cans' contents with a ruler to find how much water was applied. This test can easily help you determine how long you must water to get your one inch weekly total. You can do your watering all at once or spread it out over two or more irrigations, as long as you don't exceed this weekly total.

❦ Timers can help you water for precisely the right amount of time.

❦ Be sure that your sprinkler works well . An effective sprinkler will cover evenly and will have larger drops; this results in less evaporation than a fine mist.

❦ Run-off that occurs when your lawn becomes saturated must be prevented. If necessary, reduce the duration of your irrigations.

❦ Make sure you don't water sidewalks and driveways.

❦ Avoid overwatering; it will *not* make an unhealthy lawn healthy. A turfgrass brochure written by Washington State University turfgrass specialists, and co-sponsored by the Seattle Water Department, Everett Public Works Department, and Tacoma City Water, will be available soon.

## Ask for these pamphlets:

The Seattle Water Department has published a variety of public information materials that are available by contacting our office (206) 684-5879:

"Water Conservation in a Northwest Garden" includes tips on how to have a water-efficient garden, including a plant list;

"Water Wisely" is an attractive poster/brochure with tips on how to have a healthy and water-efficient lawn;

"Outdoor Water Conservation" contains more tips on outdoor water use;

"Water Conservation on a Northwest Lawn" is a summer lawn-watering calendar developed by the SWD that may have been sent to you already by your local water utility.

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Nota G. Lucas works with the Seattle Water Department as a planning and development specialist. She is a Washington State University Master Gardener and plant enthusiast, with special interest in low-water landscaping.

# The Water Balance of Plants

**by Richard B. Walker**

*An asterisk (*) indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum.*

Have you ever wondered why your different plants vary so much in their responses to hot weather or water shortage?

During the growing season, most plants are constantly losing water vapor to the air around them. This type of evaporation is called *transpiration*. Plants must absorb sufficient water from the soil to make up for this loss so can they maintain a favorable water balance. Failing this, the plant will develop a *water deficit*; if this deficit becomes severe, it will cause wilting or even death. The various aspects of water use and balance considered below are pertinent to planning for ''water-wise'' gardening.

### What Factors Affect Water Loss?

Just as with ordinary evaporation, transpiration increases with rising temperature and lowered humidity of the air. Sunlight enhances these two factors; it also increases the temperature of the leaf itself, often to several degrees above that of the air, thus further speeding water loss.

Adding to these drying influences is air movement—even gentle breezes substantially increase transpiration. Thus, on a breezy summer day, plants often lose large amounts of water. For example, an 8′ tall alder tree with some 2,500 leaves can lose one to two gallons of water per day. Even a small shrub can lose a quart or more in a day when it is warm.

Fortunately, in their evolution, plants have developed several features that enable them to reduce water-vapor loss. Most transpiration occurs through the stomatal pores. These are microscopic, but very numerous—from a few thousand to many thousands per square inch of leaf surface. The main role of the *stomata* is to allow carbon dioxide to enter the leaves for use in photosynthesis, but inevitably transpiration occurs at the same time. However, the two cells on either side of each of the stomatal pores have the ability to change shape and partially or completely close the openings. When this happens, transpiration is slowed or reduced to near zero. This commonly occurs if soil moisture becomes too low or the plant incurs a water deficit, and also in the dark.

Only a small fraction of leaf surface is occupied by stomata, and the rest of the outer layer (*epidermis*) of leaves and of young stems is covered by a waxy *cuticle*. This covering hinders evaporation, so cuticular transpiration results in a much smaller loss than does stomatal transpiration. The upper surfaces of leaves are more subject to evaporative forces than the lower surfaces, but the upper surfaces have very few stomata.

### What Factors Affect Water Absorption?

The water content of the soil has the most important influence on absorption. When soil moisture is high, at or near the *field capacity*, absorption is easy for the plant. Absorption becomes increasingly difficult as the water content of the soil declines and, before long, the plant can no longer absorb enough water to maintain *turgor*, so it starts to wilt.

Soils differ in the amount of water that they can hold, depending on their texture. Clayey soils can hold the most water, sandy soils the least, and loams are intermediate. Fortunately, the water-holding capacity can be increased by adding organic matter, such as leaf mold, peat, or compost to improve the soil. Also, these materials, as well as fine bark, can be used as mulches on top of the soil. They greatly reduce water losses by evaporation from the soil surface.

Good aeration of the soil is also necessary for favorable water absorption. Avoid walking on or cultivating wet soil, as this tends to compact it and reduce aeration. Finer-textured soils such as clays tend to be more poorly aerated, but their aeration can be very good if *soil structure*—with many aggregates or ''crumbs''—is favorable. Structure can be improved by incorporating organic matter, by liming, and by avoiding compaction.

Over-watering saturates the soil, filling the pores

Arctostaphylos columbiana *is capable of absorbing moisture from soils of low water content.*

*Brian O. Mulligan*

that should be occupied by air. This actually results in reduced water absorption, and also adversely affects the health of the roots. However, soils with good structure allow rainfall or irrigation water to percolate readily into the surface and through to lower depths, so aeration is soon restored.

Soil temperature is another factor that affects water uptake. On warm days in winter or early spring, when the soils are still cold, plants often suffer water deficits. This is because transpiration is high, yet water absorption is inhibited due to cold roots. Thus, a good deal of winter damage to plants is from this desiccation rather than from the cold itself.

### How Can Plants Avoid or Tolerate Water Deficits?

***Avoidance***. As mentioned above, plants can reduce transpiration by developing the waxy cuticle on their leaves and young stems. On older stems, a thick bark is an effective barrier to water loss. Also, the closing of stomata, especially during hot periods of the day, is important in reducing water loss. Extensive root systems that reach large volumes of soil give some plants access to adequate water. These trees (including fruit trees, oaks, maples, and Douglas-fir) and shrubs (such as manzanita) with deep tap and other roots usually suffer no severe water shortage during dry periods. At the same time, shallow-rooted plants may be suffering water deficits. Also, some plants, such as black locust (**Robinia pseudoacacia*), Douglas-fir (**Pseudotsuga menziesii*), and manzanita (**Arctostaphylos* spp.), are more capable than others of absorbing water from soils with low water contents. During long dry periods, plants such as madrone (**Arbutus menziesii*), dogwood (**Cornus* spp.), and some Japanese maples (**Acer palmatum*) even drop some of their leaves, thus reducing transpirational losses.

***Tolerance***. The leaves and other parts of certain plants, especially those with firm, strong leaves such as camellias and cherry laurel, are more tolerant of water deficits than those of more tender species. On warm summer afternoons when soil moisture is relatively low, plants often show "drooping" of the leaves or even more extreme wilting. This may be injurious to some, but the more drought-tolerant species (e.g., rhododendrons and geraniums) may recover during the night, when transpiration is low, even without being watered. Plants that are injured by temporary wilting are best planted in shady locations or given more frequent watering. However, plants that can tolerate temporary wilting make good plants for sunny situations, and also can "tell" the gardener that soil moisture is declining. Fortunately, some of our shallow-rooted ornamentals, including many of the rhododendrons, will tolerate repeated temporary wilting without injury. If such plants do not regain turgor and the leaves fail to assume their normal appearance the next day, obviously, watering the soil is urgent.

As we experience the customary dry period of our Pacific Northwest summer—late May through mid-September—observe your garden plants and consider their water balance needs, to help ensure their well-being. Sometimes the cloudy, misty weather of May and June conceals the fact that transpiration is exceeding precipitation, and that soils are drying. However, avoid excessive watering by checking your gardening books for plant needs. Overwatering is most detrimental where drainage is poor, or with plants that have low water needs, such as succulents and madrones. With water balance of the plants in mind, enjoy your Northwest summer with reduced water use.

## Glossary

**Cuticle** is the waxy coating of leaves and young stems.

**Epidermis** is the outside layer of cells of leaves and other parts of plants.

**Field capacity** means the water content of a natural soil which has been saturated, then allowed to drain thoroughly.

**Soil structure** is the extent to which the finer particles of a soil are aggregated together into "crumbs," favoring penetration of air and water.

**Soil texture** is the proportion of sand, silt, and clay in a soil.

**Stomata** (sometimes stomates; singular, stoma or stomate) refers to the tiny, very numerous pores in the epidermis of leaves and young stems.

**Transpiration** is the loss of water vapor from the surfaces of leaves and stems.

**Turgor** is the firmness of plant tissue when the cells have normal water contents.

**Water deficit** refers to the decline in turgor that occurs when transpiration exceeds water absorption. When the water deficit is substantial, wilting occurs.

Richard B. Walker is the former chair of the Botany Department, University of Washington, Seattle. Dick has been a member of the *Washington Park Arboretum Bulletin* editorial board since 1989. Before retirement, he taught a course in water relations of plants.

# The Dry Terrace Border at Powys Castle Gardens

**by Sue Buckles**
**illustrations by Kathy Barker**

*It is possible to achieve an English garden effect—colorful, closely planted, and with artistically arranged mixed borders—with little or no water.*

The gardens at Powys Castle in Great Britain (east central Wales) are of particular interest to those considering gardening without watering. They were not irrigated at all when I worked there in 1984—a particularly dry year. The lakes were low and the reservoirs almost empty by July. Although two small lakes are on the castle grounds, there would have been insufficient water pressure for any mechanical irrigation. All I saw was a very inadequate sprinkler used on a newly seeded lawn and, of course, very large watering cans for all the terra-cotta urns and stone containers.

One of the top terraces had a long narrow bed, about five feet deep, along the foot of the wall, and this was called the "dry border." Dry and hot it certainly was, facing southeast and sheltered at both ends by old yew trees and a big old **Arbutus unedo*. The soil was neutral to alkaline on the terraces, and though all the other terrace beds were heavily mulched with compost, I cannot remember the dry border getting its share—dry indeed!

Although I have no information about the ability of plants on the Powys terrace to withstand cold or freezing temperatures, I can give a partial list of what was growing there in 1984. Most of the plants had survived the previous winter. In many cases—the salvia, for example—annual renewal was automatically carried out using plants grown from cuttings.

I would love to inspect the border now because Britain has had more exceptionally dry hot summers since 1984.

---

Sue Buckles is a gardener at Children's Orthopedic Hospital, Seattle. She spent several months in 1984 working on the border at Powys. Sue is a member of The Arboretum Foundation and the Perennial Alliance.

*Anthemis cupaniana*

*Helianthemum*
'Ben Heckla'

*Iris germanica*

## The Terrace Border at Powys

Plants marked with a † would be worth trying to grow in the Pacific Northwest and can be found without too much trouble. An asterisk (*) indicates species, including varieties and/or forms that can be found in the Washington Park Arboretum.

**May**

*Achillea rupestris*
†*Anthemis cupaniana*
*Chrysanthemopsis gayanum*
*Cytisus beanii*
†*C. kewensis*
*C. maderensis*
†*Fremontodendron californicum*
**Halimium lasianthum*
*Helianthemum* 'Ben Heckla'
*H.* 'Fire Dragon'
†*Nepeta* sp.
*Oenothera cheiranthifolia*
**Olearia phlogopappa* (try *O. haastii*)
*Phlomis chrysophylla*
**†P. fruticosa*
*Pittosporum tenuifolium*
†*Potentilla fruticosa* 'Red Ace'
*P. davurica* 'Rhodocalyx'
†*Rhazya orientalis*
†*Salvia farinacea*
†*S. hians* (probably propagated annually)
*S. microphylla* (probably propagated annually)
†*S. patens* (probably propagated annually)
*Sophora tetraptera*

**June**

*Abutilon megapotamicum*
**†Carpenteria californica*
†*Cistus creticus*
†*C.* x *cyprius*
†*C.* x *purpureus*
*C. decumbens* 'Inversonii'
*Epilobium glabrum*
*Hypericum olympicum* f. *minus* 'Citrinum'
*Indigofera chalcedonia*
*Iris germanica*
*Malva* 'Primley Blue'
†*Maurandia barclaiana*
†*Morina longifolia*
*Salvia lavandulifolia*
*Villarsia bennettii*

**July**

**†Lavatera olbia* 'Rosea' (syn. *L. thuringiaca)*

**September**

†*Erysimum* 'Bowles Mauve'
**†Hebe* (many)
**†Hibiscus* (many)
**Hypericum* (many)
†*Origanum laevigatum*
**†Potentillas* pale yellow and gold
†*P. fruticosa* 'Vilmoriniana'
†*Stokesia laevis* 'Blue Star' grouped with
†*Zauschneria californica*

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# Perennials for Dry Shade

**by Mary S. Robson**

*An asterisk (*) indicates varieties and/or forms that can be found in the Washington Park Arboretum.*

As our Northwest gardening thoughts turn more toward managing, rather than ignoring, our dry summer conditions, we may find ourselves staring at lists of "drought-tolerant" plants—rosemary, lavender, and others that want the sunshine of San Diego or Provence. But Northwest gardens may be shady as well as dry. What perennials will grow under the front edges of a Portuguese laurel (**Prunus lusitanica*) or tucked back near that never-watered *Elaeagnus* (**Elaeagnus* sp.)?

First, some definition may help. Both "dry" and "shade" are indefinite words at best. *Dry*, as used here, means little or no natural precipitation or irrigation west of the Cascades from May to October, the period characteristically low in natural rainfall.

And *shade?* If a location receives less than four hours of filtered light per day—too little sun to open a rose or ripen a bean—we'll call it summer shade. Imagine walking in a Northwest forest—quiet, warm, naturally mulched, and green.

So, during summer, *dry shade* refers to a spot that generally receives only natural rainfall, and gets little direct sun. Unpromising conditions, indeed. Graham Stuart Thomas observed, "Apart from an undrained swamp, no planting problem can be more difficult than that of dry soil in a shady place" (Thomas 1990). We may even assume that a list of perennials for dry shade would be quite short, and that like other life situations where choices are limited, we must learn to cherish the ones we do have.

*Lynne Harrison*

Helleborus orientalis

Some plant selections for deep, dry shade are obvious: omnipresent ivies—many species and cultivars more tractable than English ivy (**Hedera helix*); *vincas, both *major* and *minor*; and various tough ferns can cover ground in nearly any situation. These evergreen plants can transform an area that would otherwise be a swath of brown earth

covered only by mulch or moss in the winter. Certainly, the western sword fern (**Polystichum munitum*) lends a sturdy graceful background in a droughty area, as will the male fern (**Dryopteris filix-mas*). These and other ferns can offer a change in scale between taller shrubs and shorter perennials, need only a spring trim for maintenance, and have few natural enemies.

Spring glories in dry shade begin with hellebores. These hellebore species and many cultivars offer early spring interest, survive waterless summers, are undeniably winter hardy, and stay nearly evergreen. Corsican hellebore (**Helleborus lividus* ssp. *corsicus*) opens its creamy-green flowers in all but the coldest Januarys; it carries stiff-textured dark-green leaves whose leathery surface indicates good water conservation. The stinking hellebore, **Helleborus foetidus*, has narrower leaves and deep chartreuse bracts that persist for weeks. Various Oriental hellebores (**Helleborus orientalis*) open flowers in pinks, whites, and purples.

Certain forms of epimediums thrive in dry shade, but concentrate on the evergreen species originating in the Mediterranean basin rather than those native to Japan or China (Olbrich 1983). A well-established stand of *Epimedium* has a lacy, translucent appearance—undramatic but intriguing—with stems wiry as maidenhair ferns and delicate compound leaflets, bronzy-green as they unfold. **Epimedium pinnatum* ssp. *colchicum* has sulphur-yellow flowers with the "inside out" shape resembling shooting stars. Another bright yellow is offered by **Epimedium perralderianum*, a tough Algerian native whose flowers are as fleeting as the hellebores are long lasting. One of many hybrids, *Epimedium* x *warleyense*, blooms in a rose-tinged orange. Old epimedium leaves at the end of winter resemble torn vinyl seat covers; remove them to show off the soft new growth.

In the same barberry (Berberidaceae) family, epimedium's Western cousin, *Vancouveria*, opens its white flowers in spring but is better known for its green, frothy leaves, handsome on both **Vancouveria hexandra* and *V. planipetala*. In well-watered borders, careful gardeners often restrict this one in pots or behind barricades since *Vancouveria* is a wanderer appropriate to dry shade, being a native of Northwest forests. It covers ground handsomely and remains semi-evergreen.

Contrasting form to these ferny-foliaged plants comes with *Euphorbia robbiae* "that plant mysteriously found by Miss Robb in Greece and never found again" (Olbrich 1983). This one works well under trees. With deep-green rounded leaves in the typical *Euphorbia* pattern along the stem, long-lasting yellow flowers cupped at the top, and the feeling of a sub-shrub (though under one-foot tall). The persistent, even frightening, abilities of some euphorbes to fill space will not be a difficulty with this one in dry shade. Beth Chatto suggests combining it with violets: "*Viola labradorica* spreads by seeds and runners between the stems of *Euphorbia robbiae* . . ." (Chatto 1978). The spreading ability of this violet will not be news to any gardeners who have been prying it out of corners and cracks.

Anyone with a patch of woods may have seen naturalized sweet woodruff (*Asperula odorata*) romping away. This plant needs no encouragement, so the most appropriate place for it is where you plan to neglect it. Under a laurel, you can appreciate its whorled texture, white May flowers, fragrance, and near-evergreen quality. The western native bleeding heart (**Dicentra formosa*) volunteers in May and will add its dark-rose flowers even in shade; it prefers a bit of water but is largely dormant in late summer.

Another eager spring plant, *Corydalis lutea*, can give you fresh, nearly turquoise foliage and persistent yellow flowers from late spring into summer, followed by apparently endless seedlings. Site this one where it can fight off the sweet woodruff in a corner lit by Bowles' golden grass (*Milium effusum* 'Aureum'). This grass, growing to about 10", is fluorescent yellow, darkening as it matures. Use it for a tufty accent in a dark place. Add lily-of-the-val-

Lynne Harrison

Meconopsis cambrica '*Frances Perry*' *(above)*.

ley (**Convallaria majalis*) and fringecup (**Tellima grandiflora*) for further spring interest.

After the spring bloom come summer flowers requiring almost no extra watering, such as the ground cover in clover leaves and pink flowers, **Oxalis oregana*; honesty (**Lunaria annua*), with its mauve flowers and coin-shaped seed cases; and the foxglove (*Digitalis purpurea*). All will seed and spread themselves. *Geranium macrorrhizum* flowers in soft pink, with a mountainy freshness when its leaves are crushed. The celandine poppy (*Meconopsis cambrica*) will bloom in light shade in May and June, with bleeding-heart-like foliage. Marshall Olbrich, Northern California plantsman, suggests the common alstroemeria (*Alstroemeria aurantiaca*) for its orange summer flowers.

By now you may be exclaiming, ''Eeek, garden thugs!,'' noting the rambunctious habits of many of the dry-shade lovers. It's vital to note that although many of these plants are too exuberant for a spot next to your cherished lilies, their vitality makes them tough and persistent. Allowing them to reach their own equilibrium in dry shade can be rewarding.

Bulbous-type plants present natural choices to accentuate the changing seasons in dry shade, many staying dormant in summer. **Iris foetidissima*, with small flowers and handsome dark green summer foliage, is most often grown for brilliant orange seed heads that open in fall. Another fall accent is the red-orange rod of *Arum italicum* seeds. The arum emerges from summer dormancy to send up prominent seeds followed by fresh, white-bordered leaves that last through winter. Hardy cyclamen (**Cyclamen hederifolium*) manages in filtered shade that stays dry during its summer rest. Patches of this treasure bloom in pink from early fall, intermittently into early spring.

For all of these plants, life will be most vigorous with a deeply-dug soil that has added organic matter, such as compost; all prefer ''woodsy'' conditions. The more water-retentive the soil we can provide, and the more efficiently drained and aerated, the better most of these plants will do. Consistent mulching, keeping a 1½-2′ layer, also helps. Most drought-tolerant plants will require watering during their first growing season, while becoming established.

Our fellow gardeners can be good sources of information on these and more plants for dry shade. Gardeners observe and converse, taking delight in what we learn from both. And from books—George Schenk's *The Complete Shade Gardener* contains an eloquent tribute to ''shade garden soil'' and hundreds of plant suggestions. With appreciation of the unexpected and faith in experimentation, you will find many choices. Our gardens can thrive in Northwest dry summer shade.

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Mary Robson gardens in a shady corner of Seattle's Capitol Hill district. She works for Washington State University/King County Cooperative Extension as Master Gardener Coordinator. Mary collects books during winter, plants during summer.

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*A "dry" Tacoma garden on a dock has* Oenothera speciosa, *silver-pink with glowing pale yellow centers (r.), with Santa Barbara daisy* Erigeron karvinskianus.

# Whetting Your Appetite for a "Dry" Garden

**photos and text by Daniel Borroff**

At the 1990 Northwest Flower and Garden Show in Seattle, my company had a lot of explaining to do. We'd created a "drought tolerant" demonstration garden. Not only did we have to explain what had become of our sense ("Drought here? Ha! Water shortage in Seattle? That's rich!"), we had to explain how we got interested in drought-tolerant plants.

Here's the story about the path that led me to my personal interest in plants that are adapted to the winter-wet/summer-dry climate of the Pacific Northwest. The path is not direct, but along the way I did battle with several myths.

**Myth 1: The well won't run dry.**

When I was about 14 years old, our well ran dry—or, rather it began to serve up mud and iron-tinged water. The well was re-drilled, although our water supply was still tenuous. One evening a house guest ran the shower for three minutes despite our pounding vigorously on the door, but the dinner dishes had to wait until morning. My journey to learn about plants that are adapted to our climate probably had already begun.

In the mid-1970s, a few years after I arrived in Seattle from Ohio, there were several winters with very low snowfall in the mountains. There was plenty of water available for gardens, but power was rationed, so buildings and trees were dark at night. It seemed familiar to me somehow, that a whole city could work together to conserve electricity. Now that there are twice as many people living here, with a low snow pack we can expect severe shortages for garden watering. I'm reminded of our house guest who ran the shower for three minutes, heedless of our pounding on the door.

**Myth 2: Seattle is cool, rainy, and wet most of the summer.**

My first summer in Seattle, the lawn turned brown. It may seem rainy here to boaters, hikers, and out-of-town guests, but I was twenty-two years old and from the Midwest, so this cool, dry summer was puzzling.

The facts speak for themselves. At the height of our growing season, May through mid-September, we receive seven inches of rain. During the dormant season we receive 29 inches of rain, four times as much. Imagine working all day in the heat, but being allowed to drink only before and after work. Despite the reputation we've earned as the wet mop of the United States, if you've got chlorophyll, this is a challenging place to live. Many plants, fortunately, are up to the challenge.

**Myth 3: White plastic pipe is a necessary component to our soil.**

One evening I was working on the final phases of a landscape. I was soaking wet from testing the sprinkler system, an important chore. The sun was setting over a magical and timeless Puget Sound tinted peach and pale turquoise, but I felt cold and miserable. Suddenly, a disconcerting image came to me of white plastic irrigation pipe extending out of sight along the shoreline. Are we creating a grim

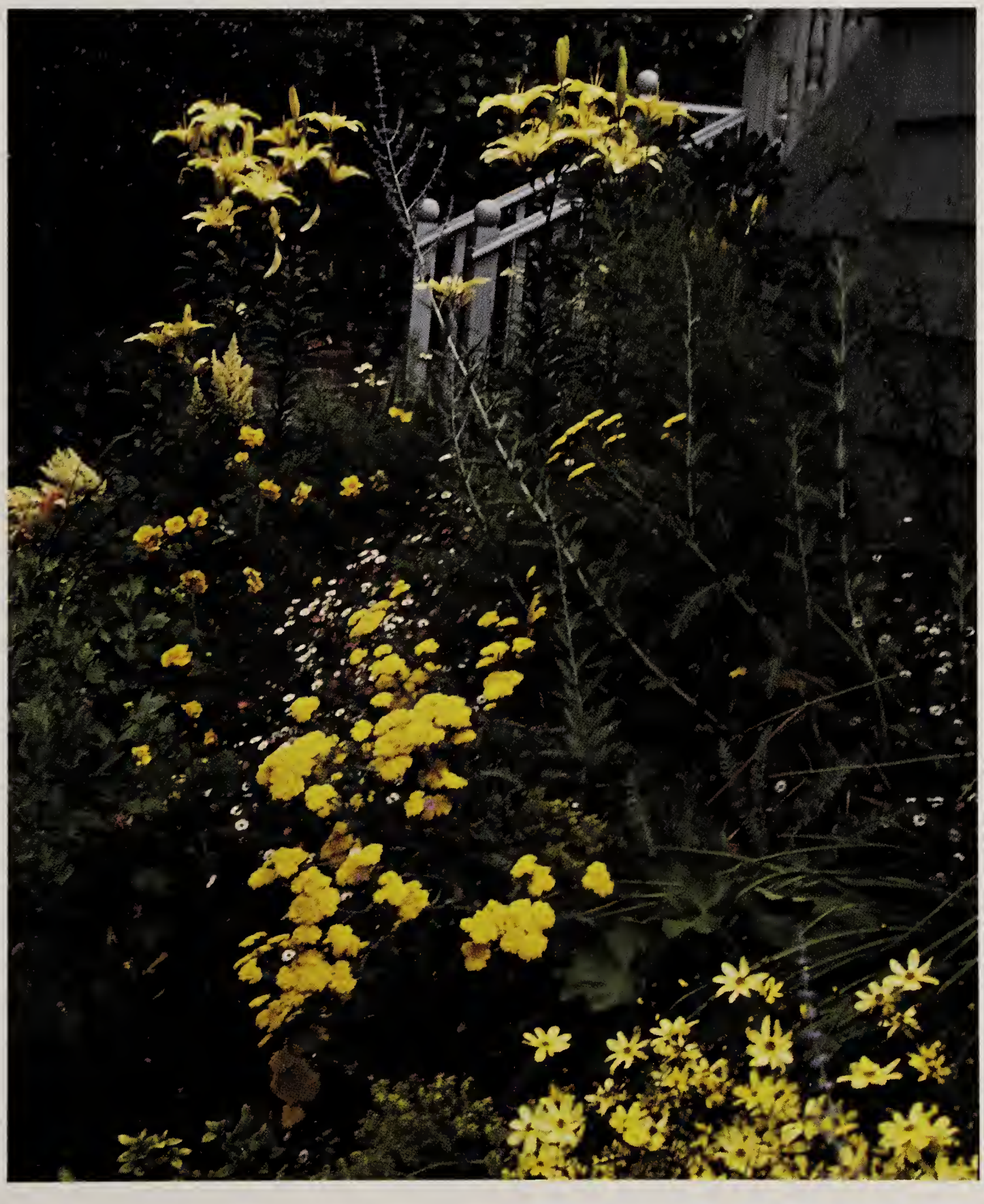
*(text continues on page 18)*

Dan Borroff asks his clients to look in magazines and design their dream garden—something that would stretch their budgets and patience to prepare. Dan doesn't use a specific gardening style, but prefers to have people enjoy the plants themselves and learn something from them. Following are three gardens designed with the clients' wishes in mind. They all require minimal watering.

**Top photo**: A small city lot on Queen Anne hill was established on sandy soil amended with bark and mulch. Middle left is *Ruta graveolens*; gold sword yucca is lower mid-left. The other plants include: the foliage of *Marrubium cylleneum* (lower right), which has pale lilac flowers when in bloom; *Achillea* 'Powell's White' (white flowers); and the silvery *Artemisia* 'Powis Castle' (top back).

**Bottom left**: Dan Borroff assembled a satisfying arrangement in pots, with few flowers and lots of good foliage. The daisy-like *Echinacea* 'Bright Star' is a good annual in the Pacific Northwest. The foliage in the upper right is *Euphorbia* x 'Martinii' near the little *Aster divaricatus* (lower middle). The pale yellow flowers (upper right) are *Coreopsis* 'Moonbeam'. Upper left, the ovate blue *Rosa glauca* must be managed so as not to overgrow everything.

**Bottom right**: Dan designed this area for a very hot southwest exposure—the only view from the house above. The site started with sandy soil which was amended with bark and mulch. The owners wanted bright color. It had to be showy and withstand several kids, an old sprinkler system, and a busy schedule. The pale yellow flower, *Achillea* x 'Taygetea', is mid-photo. The short, pale flowers (lower right) are *Coreopsis* 'Moonbeam'. Yellow Asiatic lilies are in the background. The tall, slender spikes topped with blue flowers (right) are *Perovskia abrotanoides*.



legacy? Where did we develop the ethic that allows us to treat this land in such a cavalier fashion just to have green lawns?

**Myth 4: Low-water gardens are stark and unappealing**.

There are some challenges to achieving low-water-use gardens. An enormous number of wonderful plants are available which perform admirably with very little additional summer watering. Most of us, however, desire two major water guzzlers, rhododendrons and lawn grasses. How did we manage to find ourselves with such an abundance of these water hogs?

England and Japan have exerted a domineering influence on the aesthetics of gardens in the United States. This is especially true in the Pacific Northwest. I feel that we have borrowed the aesthetics and neglected the influence climate had on the development of their aesthetics. Both countries have wet summers. Tokyo, for instance, receives nearly five inches of rainfall every month of the year. Gardeners in these countries grow plants that are adapted—with a few notable exceptions—to the requirements of the locale. They understand and accept the limits of the climate. The real trick for garden designers here in the Pacific Northwest is to develop an aesthetic that suits us well, based on the plants that will grow in this climate. Instead of opting to continue to garden with plants that require supplemental water, we can use our resourcefulness to develop landscapes that conserve and please the senses.

It's time to develop an aesthetic of gardens for this area—a philosophy that includes our climate and style on an equal basis with the heritage of other countries. The truly wondrous things in design occur when the influences of other cultures meld with the genius of the locale. Designing for dry gardens is an opportunity.

**Myth 5: They will water the garden by hand**.

There were several gardens that made subtle changes on my design. The first garden, in 1986, was sun baked and filled with sunburned rhododendrons. Not one tree was allowed to obstruct the view.

I moved the rhododendrons to the north side of the house and replaced them with shrub roses (e.g., *Rosa simplex*, *R.* 'Nearly Wild', and *R.* 'Roseraie de l'Hay', with a mix of broad-leaved evergreen and deciduous shrubs, as well as sun-loving perennials. There are yews (**Taxus* cvs.), Stokes Holly (*Ilex vomitoria* 'Stokes'), and **Amelanchier alnifolia* to provide structure and winter interest. In season, *Phlox carolina* 'Miss Lingaard', **Artemisias*, *Stachys*, hardy geraniums, and a host of other perennials fill the garden with bloom. Gardening is the owner's passion and maintenance is her cup of tea; the plant list is immense, although there weren't any rhododendrons. There *was* a sprinkler system, so we had the luxury of indulging in a vast array of plants. The time for a real garden adapted to our low summer rainfall was yet to come.

My second low-water garden was sited on a southeast facing sandy hillside and had a budget. The choice was between plants or sprinklers. Common sense favored plants. If they would water the garden by hand or turn on the antiquated manual sprinklers, everything would be fine. I went to my books and the garden grows profusely. They and their house guests are not aware that it's a ''low water'' garden. They just appreciate the beautiful plants.

Two years later my company designed and installed a garden perched on a steep hillside. The soil was unstable. With trepidation, I recommended no sprinkler lines on the hillside. The client's taste in art and design was impeccable, the house a *tour de force* of modern design, and the setting on the water. My interview revealed that they would love the sorts of plants that are best adapted to the wind and exposure of the seaside.

Now, great waves of ornamental grasses wash the hillside. They included *Stipa calamagrostis*, *Calamagrostis acutiflora* 'Karl Foerster', *Miscanthus sinensis* Cv. 'Gracillimus', *Deschampsia caespitosa*, arranged with groups of shrubs, including: *Cistus* x *hybridus*, *Ceanothus veitchianus*. *Spiraea bumalda* 'Anthony Waterer', and *Forsythia* x *bronxensis*, placed like rock outcroppings in the waves of grasses. Between the shrubs and grasses are a froth of perennials such as *Alstroemeria* 'Princess Victoria', *Verbena bonariensis*, *Alyssum* s. 'Sunny Border Apricot', *Erigeron karvinskianus*, *Oenothera speciosa*, and *Coreopsis* 'Moonbeam' to create a scene of rich colors that glow in the afternoon sun and retain a regal and somber presence when the weather is unforgiving.

One day we returned to replace a few winter casualties. The soil was bone dry as far as we dug. Only the top quarter-inch of soil was moist from the previous day's watering. Elsewhere the soil was equally dry. In this arid soil, the ''drought tolerant'' plants I'd chosen were a riot of color. The challenge had been met. One of the greatest rewards to me as a designer is to create a garden that is appreciated for its beauty, and which begins to contribute to the restoration of our environment.

**Myth 6: Water conserving gardens here will be totally new and unique!**

Not true, of course. There are plenty of examples and there is plenty of folk wisdom available here that has not yet been assembled into a convenient form. For example, look to the plants that thrive by abandoned homes and to gardens whose lawns are allowed to fade to gold in the summer.

There are other places in the world we can turn to for examples. On a trip to Italy a few years ago I made it a point to look for sprinklers. I didn't find any. Italy has a dry summer/wet winter climate similar to, but warmer than, our own. The gardens are among the most revered in the world. There are many other places we can look to for examples as long as we are aware that these gardens may be different than what we are used to seeing.

**The Reality: What's Next?**

It has been a wonderful and exciting few years for me. The design challenges of these gardens (and several others) have motivated me to learn more about the fascinating horticultural potential—and the limitations—of this area. The most important thing for us at this stage is to enjoy the learning process. Water conservation is only the first step in learning how to live with the limitations of the ecosystem. I have thoroughly enjoyed the process so far and look forward to the next lessons.

---

Dan Borroff has a garden design and construction company in Seattle, specializing in unusual garden-worthy plants adapted to local conditions and soils. He is a member of the Perennial Alliance, runs a study group on water-conserving gardens, and maintains two "unthirsty" mixed shrub and perennial borders which were installed on the west side of the Good Shepherd Center in March 1991.

In fall 1990, Dan Borroff started a year-long study group to learn about water-conserving gardening. The group, including fourteen members of the Northwest Perennial Alliance, meets monthly and collects anecdotal reports about low-water use plants. They would appreciate some help with data entry because the list is quite extensive already. If you are interested in helping with this task or if you would like to provide assistance to continue this project beyond the fall, then please call Dan at (206) 329-5545.

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# Where are the Cardiocrinums?

**by Barbara Flynn**

Cardiocrinum *is one of the exotics that is rarely seen from Seattle to British Columbia. Once in place, however, it can be virtually forgotten until it blooms.*

In 1988 I moved to a new home in Redmond, Washington. As I made the last circuit of my old garden, I remembered my *Cardiocrinum giganteum*, the white-trumpeted lily. A very small bulb had been planted several years before in well-prepared soil and, after the initial excitement of acquisition, left alone. Brambles, Oregon grape, and weeds had grown over the plant but there it was, untended and unwatered, yet cheerfully alive and green. The weather for those years had ranged from deluge to drought, and the *Cardiocrinum* had survived and grown with no help on my part. I dug it up and moved it to the new garden. This year it is sending up a bloom stem.

*Cardiocrinum giganteum* was first found in Nepal about 1825 by Nathaniel Wallich, a Danish surgeon and naturalist who was the director of the Calcutta Botanic Garden from 1817 to 1847. At that time, the plant was given the name of *Lilium giganteum*. Later, a similar plant was found in the Chinese province of Hubei, where it was known as "Peh-wah-ho" to the inhabitants, who used the bulbs as food and the hollow stems for musical instruments (Wilson 1925). This plant was named *Lilium giganteum* var. *yunnanense*.

Since there are major differences between the bulbs, leaves, seeds, and flowers of *Cardiocrinum* and other species of lily, the *Cardiocrinum* was given a separate genus (Fox 1985). It took its name from the Greek words *kardia* (heart), a reference to its heart-shaped leaves, and *krinon*, a kind of lily. We now know that the range of *C. giganteum* is from Simla, north of New Delhi, through Himalayan India into Nepal, then Sikkim and Bhutan, southwards into Assam, and northwards into southeast Tibet where *C.g.* var. *yunnanense* takes up the flag; this variety extends from Yunnan into northern Burma, Szechwan, and Hubei. There are two other species in this genus, *Cardiocrinum cordatum* and *C. cathayanum*, which I have not grown or seen.

Barbara Taylor

Cardiocrinum giganteum *in bloom against sky.*

A mature *Cardiocrinum* bulb is about 7″ long and 5″ in diameter, shaped rather like a walnut. However, this is not a plant for the impatient, for it can take seven or more years from germination of the seed to the development of a flowering-sized bulb (Fox 1985). But what a flowering! First, in mid-February the pointed tips of the basal leaves start to emerge. By mid-March they have formed a huge glossy green rosette, quite different from the immature years when only three or four leaves show. *Cardiocrinum giganteum* var. *yunnanense* has particularly lovely leaves with a bronzy cast to them. As a general rule, frost and snow do not seem to bother these plants. This March, however, with unusual rapid changes in temperatures, some rot-

## Glossary

**Basal** indicates the lowest leaves of a plant arising at or near soil level, often of different shapes than those on the stem.

**Monocarpic** means a plant that fruits only once and then dies, usually referring to plants that grow for several years before flowering and fruiting (e.g., the century plant, *Agave americana*, which may grow for 50 or more years before fruiting and dying).

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Garden open dawn to dusk

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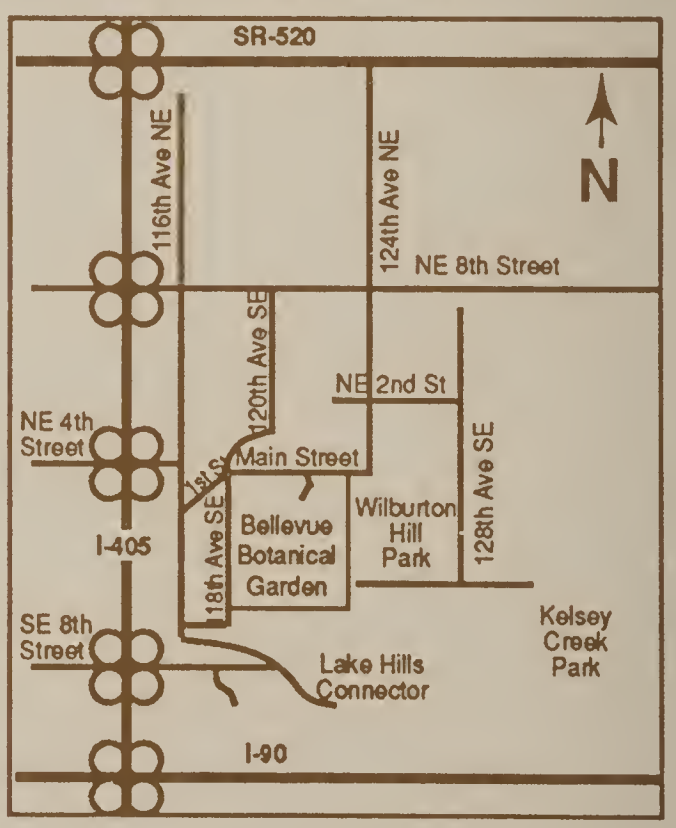


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ting did occur on a few of the plant's basal leaves. I promptly removed them with sterile scissors.

In April, the hollow flower stem starts to emerge. It is almost like in "Jack and the Beanstalk" as the spear-like stem soars ever higher, its graceful leaves flaring out, one after another, until finally in June the plant reaches about 10′ in height. Then the glorious unmatchable flowers open. Each pure white trumpet is about 10″ long, its throat tinged reddish-purple. A scent fills the entire garden reminiscent of an apple orchard in bloom. Some plants carry as many as twenty blooms, but usually there are about twelve.

Sadly, exhausted by these fireworks, the plant sets seed and dies, as it is monocarpic. It also leaves behind a number of offsets of quite decent size that will bloom in about four years. It is said that these offsets do not have such good flowers as the seed-grown plants. *Cardiocrinum giganteum* var. *yunnanense* is slightly different in that it has dark stems and is shorter in stature. In its native habitats, *C. giganteum* grows at altitudes of between 5,000 to 12,000 feet in the shade of mainly deciduous forest trees with northerly exposures. The soil is often loose, rocky subsoil with gritty loam having a surface cover of decayed leaves. It is a very fast draining soil—and needs to be—since the annual rainfall for that part of the world is usually fifty inches or more. *Cardiocrinum giganteum* var. *yunnanense* seems to prefer deeply shaded ravines and very moist humid soil, again with good drainage (Wilson 1925). Temperatures in these areas vary with latitude and altitude but, on the whole, seem comparable to areas in and around Seattle.

With the above information, we can plan the cultivation of these species. Miss Gertrude Jekyll loved her "giant lilies" and, as always, grew them to perfection even in her poor, sandy, shallow soil. Her method was to excavate a hole 4′ deep and 12′ across, then fill it with all the very best stuff: coffee grounds, cotton socks, vegetable wastes, dead leaves, and old manure, topping it off with a foot of good compost. This mix is quite wonderful as it allows excess wet to drain but retains moisture at other times. The depth is necessary, for although the bulb is planted with only an inch of soil over it, the roots are long and brittle. For a clay surface, if there is a slope, a log could be put near the base and compost filled in between the slope and the log, again about 4′ deep. This would be just as it is in nature. If there should be a creek or pond nearby, so much the better (see Lancaster 1989 for examples). Both these methods hold desired moisture in the soil so that supplementary watering should not be necessary, but make sure there are no greedy tree roots close by. Ferns or primulas are non-competitive companions and help to maintain interest while the bulbs mature. Rhododendrons make good background plants.

*Cardiocrinums* are remarkably free of pests. Root weevils, mice, and aphids do not seem to bother them, but slug bait should be used because slugs can spread viral infections.

Sow fresh seed in a good commercial mix; sometimes it will germinate the following spring, although it may take a year or two. The bulblets can be planted out when they are about two years old. Miss Jekyll took up her offsets at the end of November for replanting (Jekyll 1983), but anytime the plant is dormant should be fine if the ground is not frozen.

At the present time, if you wish to see stands of the pride of the Himalayas, go to the University of British Columbia Botanic Garden or the Van Dusen Botanical Gardens. They sometimes have seed and bulbs for sale.

In South Canterbury, New Zealand, *Cardiocrinum giganteum* has escaped from the estate where it was first grown, into the wilds, and at Christmas every year there occurs what must be one of the horticultural wonders of the world: thousands upon thousands of flowering *Cardiocrinums*. It may be hard to emulate that phenomenon, but we can certainly grow a few.

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Barbara Flynn is a long-time Arboretum Foundation member who gardens in Redmond, Washington. She also is active with the King County Iris Society, the Seattle Primrose Society, and Master Gardener Program.

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E.F. Marten

Cistus *x* purpureus

# Rock and Rose

## by Daniel J. Hinkley

*Plants that require minimal moisture can decorate rock walls and gardens.*

The abundant and marvelous rock walls that abound in the hills of Seattle host a predictable array of plants. *Bergenia crassifolia*, more at home in the moist grasslands of Siberia, survives within these crevices yet its bold leaves are often torn ragged by the ravages of slugs and weevils. *Iberis sempervirens* puts on a good show of clean white in early spring only to pale to nondescript vegetation for the remaining calendar. The over-utilized Tam juniper, **Juniperus sabina* 'Tamariscifolia', perfectly acceptable in large spaces, is often seen shorn along thoroughfares, creating a ghastly rigid brown edge.

Infrequently found among these urban crags is a group of plants collectively called the sun or rock roses. The beauty they provide belies the image of drought-tolerant species conjured up in green-laden minds of area gardeners. Even the hydrophilic gardener can find numerous reasons for their use in the garden.

The genera *Cistus*, *Helianthemum*, and *Halimium*, and their intergeneric hybrids offer a tremendous number of plants for well-drained, sandy, and hot positions. Difficult problem areas, such as a south-facing foundation with wide eaves, are solved by the utilization of these tough, adaptable plants. Competition from roots of trees is a common and difficult situation in the Pacific Northwest where so many large, coniferous, water-greedy trees abound. As long as sufficient direct sunlight is available, these xerophytic charmers take this formidable circumstance in stride, though as with many drought tolerant plants, watering during the first season of establishment is advantageous. Further exploration and utilization of the aforementioned genera could greatly enhance the beauty of landscapes in the Pacific Northwest.

The question of hardiness, which springs forth in tiresome abundance after our severe frosts of late, is answered easily and assuredly, even on those years that the thermometer dips into single digits. A less vigorously growing plant, i.e., one that has received less water during the later summer and early autumn months, will be more likely to survive a frigid assault. Even should they suffer from the cold, it is usually the tops of these shrubs that will die, and growth will resume from the base again in the spring.

The marriage of foliage to flower in the rock and sun roses is one of harmony and complement. With a range of colors from purest white through soft pastels, as well as striking warmer tones of red and orange, these genera provide an ideal background of gray-felted or dark green leaves.

*An asterisk (*) indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum.*

## Glossary

(after the American Heritage Dictionary)

**Hydrophilic** indicates an affinity for water.

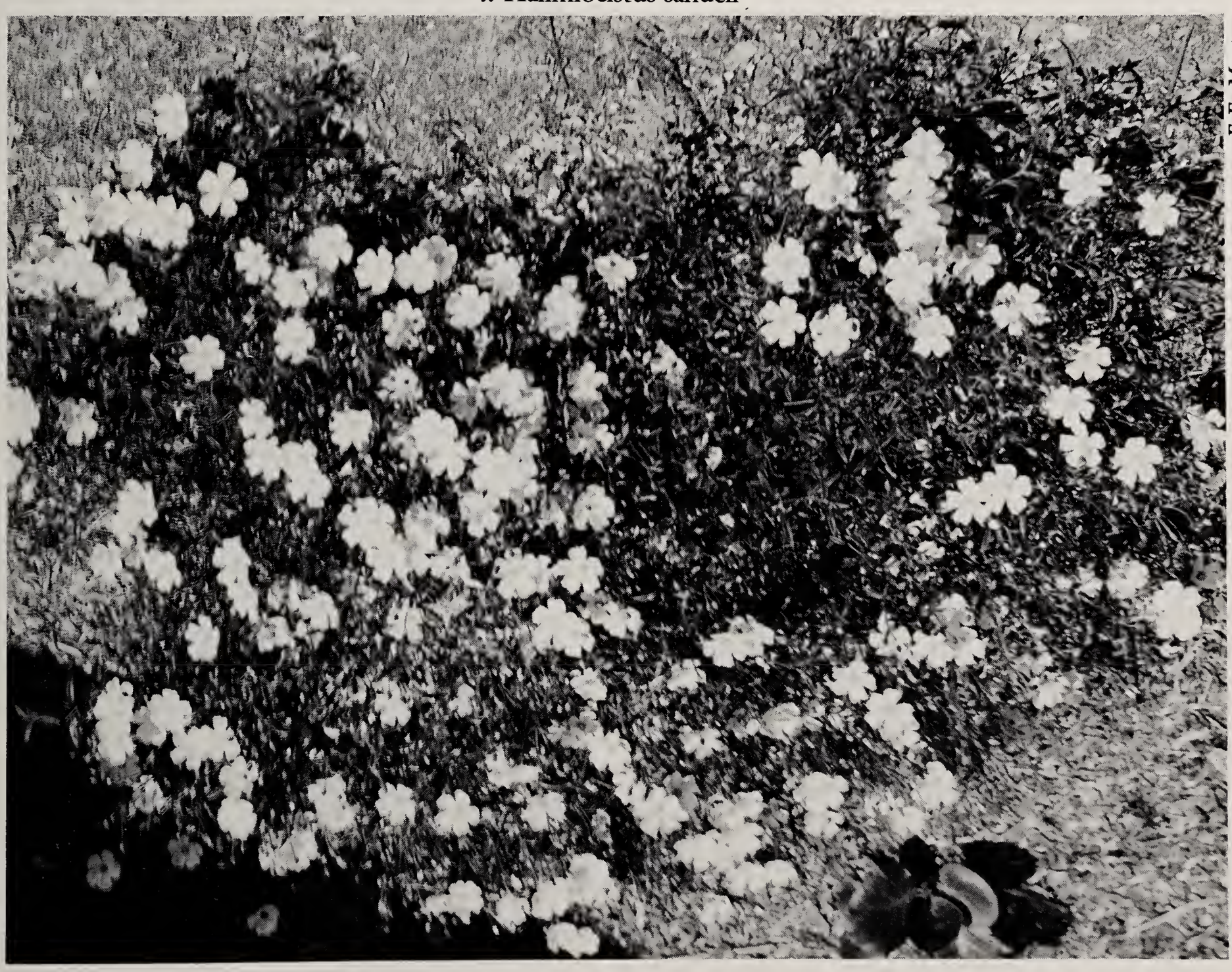
**Xerophytic**, a plant growing in and adapted to an environment deficient in water.

The genus *Cistus* is chiefly Mediterranean with relatively few species (20), though a fair number of hybrids and cultivars exist. Horticultural interest in the rock roses declined after its initial surge of popularity early in the nineteenth century. A rebirth of interest in *Cistus* and its close relatives has occurred in the water-poor temperate areas of the United States during the past decade. Flowers, rose-like in appearance with five papery-textured petals, are produced in copious abundance on a range of *Cistus* species from June through August. The ephemeral flowers are spent before noon of the day they open; however, the profusion of flower buds keeps the shrubs in color for several weeks. The shrubs mature at a relatively small size, to four feet, though they may become taller in richer, moister soil.

The two rock roses commonly encountered in Puget Sound nurseries are both hybrids. **Cistus* x *hybridus* (*C.* x *corbariensis*) and *C.* x *purpureus* represent hybrid groups rather than specific clones. As with all the *Cistus* hybrids, there are several clones of these crosses in cultivation that can vary to a substantial degree in appearance and hardiness. *Cistus* x *hybridus* is the resulting progeny of a natural cross between **C. populifolius* and **C. salviifolius*. In my observations, there seems to be only a single clone available in the Pacific Northwest. Our form produces 2″ white flowers in great abundance with an egg yolk blotch of yellow in the center. The green leaves are distinctly undulated and are attractive and persistent even in our coldest years. *Cistus* x *purpureus*, the purple rock rose, is less common though widely available. As its name implies, the flowers, 3″ across, are deep pink, each petal thumbed at its base with a dark blotch.

More obscure, yet worthy of finding, are other members of the genus. **Cistus incanus* has soft pink flowers produced amidst soft green foliage.

*x* Halimiocistus sahucii



*E.F. Marten*

Richer pink flowers are produced in abundance on *Cistus* x *argenteus* 'Doris Hibberson' complementing the gray-green foliage nicely. *Cistus salviifolius* 'Prostratus' lies nearly flat to the ground and carpets with sage-like leaves and small clear white flowers stained yellow. Relatively new to the trade, *Cistus pulverulentus* x 'Sunset' spews brilliant hot pink flowers and though not subtle, makes a certain splash in amongst softer shades. Peter Ray of Puget Garden Resources on Vashon Island, Washington, is currently distributing to local nurseries **Cistus* x 'Elma' and *C.* 'Peggy Sammons'. The former hybrid has very large pure white flowers and deep glossy green foliage whereas the latter, a medium shrub of upright habit, produces copious delicate pink flowers and is thought by many to be a step up from an older cultivar, 'Silver Pink'.

More diminutive in every aspect though no less likeable are the sun roses, or the genus *Helianthemum*. With over a hundred species in all, including shrubs reaching less than 12 inches in height, they are ideal candidates for cascading down and amongst rock walls. Closely related to *Cistus*, the huge crops of flowers of *Helianthemum* are produced anew each day. The only requirement of the genus is full sun; seemingly, it is adaptive to both poor and dry, as well as average, garden loam that is well drained. Though it is not impossible to locate true species of this genus, the vast majority of those grown in cultivation are garden hybrids between *H. appeninum*, *H. nummularium*, and *H. croceum*. In a range of colors from the purest white through yellow, pink, and brightest red, the sun roses are drought-wise and obstinate yet cloaked in delicate beauty. The cultivars, including bright red 'Stoplight', clean white 'St. Mary' and pale yellow 'Wisley Primrose', are regularly encountered in area specialty nurseries, but do not be surprised to find the correct names have long been lost with labels simply designating the color. Newly available in Puget Sound nurseries are two double forms of *Helianthemum*. One is a deep yellow called 'Sunfleck'; the other is the double red, 'Boule de Sen'. It is interesting to note that the eastern U.S. is home to the extremely rare white-flowered *H. canadense* which has little use horticulturally but has been well put to use in human medicine.

Less frequent in Pacific horticulture are members of the genus *Halimium*. Far fewer species exist (7) than occur in the genus *Helianthemum*, though some taxonomists choose to unite the two genera. I can only comment from an ornamental standpoint with regard to *H. ocymoides*, which I grow. The

*E.F. Marten*

Halimium ocymoides *var.* lasiocladum

*E.F. Marten*

Halimium lasianthum

*E.F. Marten*

Cistus populifolius

flowers are a distinctive yellow with a purple-red blotch at the base of each petal. The growth habit and requirements are similar to *Helianthemum* and *Cistus*, though the overall effect of *Halimium* may be slightly more rigid than the prostrate growth of the sun roses.

It is in the bigeneric hybrids between *Halimium* and *Cistus* where the desirable traits of *Halimium* are most often observed. *x *Halimiocistus* is the genus applied to several crosses between different species of these two genera. With the exception of one, all have occurred in the wild where natural distributions of these two generally overlap. *x *Halimiocistus sahucii*, found wild in France, has been growing successfully in the Northwest for many years. I first saw this plant in full blossom at Evie Douglas's garden and nursery, Cricklewood Nursery, in the month of May. I was impressed with its floriferous nature, coated with small white roses with a yellow center, each slightly over an inch wide. Had I returned to Cricklewood again in September, I would have been equally impressed by this vigorous hybrid which blooms continuously for several months. Finely textured foliage with a spreading habit and two feet in height, it is one of the most beautiful and adaptable drought-tolerant plants currently overlooked by horticulturists and landscape designers. x *Halimiocistus* 'Ingwersenii' is somewhat coarser textured with lighter green leaves and bears slightly larger flowers for several months from early summer to autumn.

Drought-tolerant selections of plants and those that are low-water consumers need not be limiting; rather they are desirable factors as our landscapes are developed. These wonderful shrubs and ground covers will reward you for your neglect and help conserve that commodity in which we are winter rich and summer poor.

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Daniel J. Hinkley is an instructor in horticulture at Edmonds Community College. Dan is on the board of directors of the Seattle Chinese Garden Society and co-chair of its horticulture committee.

**More Reading**

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*Helianthemum* hybrids:
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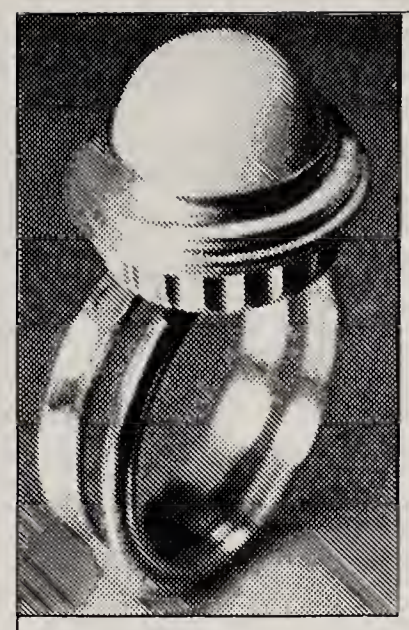

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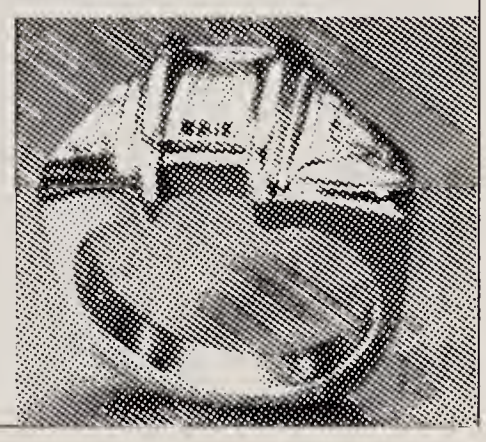

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# Northwest Hort Review

## by Van M. Bobbitt

## Hydrogels for Water Conservation?

*An asterisk (*) indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum.*

How would you like to have a soil additive that conserved moisture, reduced the chore of watering, and helped your plants better withstand the warm, dry days of summer? Products are available at nurseries and garden centers that are purported to do just that. Several brands are available, and they go by common names such as super-absorbent polymer, water-absorbing gel, hydrophilic polymer, and hydrogel (the term used below).

Hydrogels are generally made from starch-based or synthetic polymers. They are purchased as dry granules that have the capacity to absorb many times their weight in water; estimates range from 40 to 800 times, depending on the particular product in question. These gels are supposed to work like little sponges in the soil, absorbing water after rainfall or irrigation, and slowly releasing the water back to the soil and plant roots as needed.

According to the advertisements, hydrogels will reduce irrigation frequency, protect plants from drought stress, reduce fertilizer leaching, improve aeration of soil mixes, enhance seed germination, and reduce transplant shock.

Perhaps the major benefit to home gardeners would be to reduce the chore of watering plants during the summer months. The All-Gel Corporation of Seattle states in an advertising brochure that their hydrogel product, Water Saver,® can "reduce water frequency by as much as 75% in potted plants, and up to 50% on lawns, golf courses and field crops" (All-Gel Corporation 1990).

This all sounds great, but unfortunately the research results on hydrogels have been mixed. Whereas they benefit plant growth and save water in some cases, in many others they had no significant benefit or were detrimental.

British researchers at the University of Liverpool tested both a synthetic and a starch-based hydrogel on container-grown maples (**Acer pseudoplatanus*) and willows (*Salix viminalis*). The trees were grown for two seasons under two different irrigation regimes: (1) irrigation every three days or (2) irrigation every six days. At the end of the experiment, the researchers found that both types of hydrogels had improved tree growth under both irrigation regimes. They stated that: "The polymers were particularly beneficial under infrequent irrigation, where they buffered the trees against the effects of short-term drought" (Woodhouse and Johnson 1991).

Researchers at Texas A&M University tested the effect of Agrosoke,® a synthetic hydrogel, on the water use of the spider plant (*Chlorophytum comosum*) and Boston fern (*Nephrolepis exaltata*) grown in containers. The two species responded differently. Whereas Agrosoke® did not reduce irrigation frequency, the spider plants did grow 50% larger and develop better root systems when Agrosoke® was incorporated into the soil mix at *twice* the recommended rate. In contrast, Agrosoke® had no effect on either the irrigation frequency or growth of Boston fern (Wang and Boogher 1987).

In another experiment at the University of California, Riverside, zinnias (*Zinnia elegans* 'Thumbelina') were treated with three different hydrogels: Celanese,® Agrosoke,® and Terrasorb.® Celanese® reduced both water use and irrigation frequency, while the other two treatments had almost no effect on these factors (Furuta and Autio 1988).

Robert Tripepi (1991) of the University of Idaho tried a hydrogel to help grow birch tree seedlings in containers. He was hoping to reduce irrigation frequency and improve the survival rate. But the gel was not effective. Tripepi reported that "It didn't do much for the irrigation frequency. For plant growth it was not helpful at all."

Tripepi offers some possible reasons for the lack of effectiveness of hydrogels in his experiment, which also may apply to other situations:

**Aeration decreases**. Although hydrogels often are advertised as being able to *increase* soil aeration, they may in fact *decrease* it under some circumstances. In his experiments, the hydrogel reduced root growth by 29%, perhaps due to

decreased pore space in the soil.

**Fertilizers reduce effectiveness**. Mineral elements in fertilizers can greatly reduce the water-absorbing capacity of the gels. Cations (positively charged ions) of potassium and ammonium, commonly found in fertilizers, can reduce water absorption up to 80 percent. Even tap water, depending on its cation content, can reduce the water-absorbing capacity by 75 percent. The high water-absorption rates advertised are probably achieved with distilled or deionized water.

**Wet-dry cycles affect outcome**. Repeated wet-dry cycles can reduce the water absorbing capacity of some gels.

**Gel does not release water**. Tripepi's experiment indicated that the gel was not releasing the stored water into the surrounding potting mix. Instead, the roots had to grow into the gel before they could benefit from the stored water. Therefore, he recommends that irrigation not be reduced for three months after incorporation of the gel into the soil mix (Buffett 1990; Tripepi 1991).

It looks like the jury is still out on the overall value of hydrogels. The research results have been decidedly mixed and seldom as positive as the advertisements for these products. Their effect on irrigation efficiency apparently varies with the particular product being used, the plant species being grown, the amount and type of fertilizer being applied, and the quality of irrigation water being used.

Can hydrogels make watering of container plants less of a chore in your garden? Why not run your own test? Incorporate a hydrogel into the soil mix of half of your container-grown plants and use an unadulterated mix in the others. See if you notice any difference in plant growth and the frequency with which you have to water your plants.

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Van M. Bobbitt is the Master Gardener/Urban Horticulture Coordinator, Washington State University Cooperative Extension, Puyallup, Washington. As an outgoing member of the *Arboretum Bulletin* editorial board, we thank Van for this column and his other contributions to the *Bulletin*.



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# In the Washington Park Arboretum

by Christina Pfeiffer and Timothy Hohn

## Clean-Up of Winter Damage

During January and February 1991, nearly all of the time of the Arboretum grounds staff, with the help of outside contractors, was spent cleaning up fallen trees and limbs caused by the December 1990 storm. Unfortunately, many standing trees were so severely damaged that they could not be repaired and were removed. Many large shrubs and small trees that had toppled over were righted and guyed. As of mid-May, we were occupied with repair and pruning tasks resulting from the early winter storm. The removal of large stumps is scheduled for the drier months of summer.

Stump and large root removal is absolutely essential in the Arboretum to discourage the build-up of pathogenic, soil-borne fungus diseases such as honey fungus and hypoxylon root rot. Extensive pruning, fertilization, and irrigation efforts will continue into the summer while the extent of the freeze damage to the plant collection is verified, documented, and treated.

## Winter 1991 Accessions

Many new additions have been made to collection displays in the Arboretum despite the extensive amount of time required for storm repair. Between February and May of 1991, 271 plants representing 57 accessions were planted out for display in the Arboretum. Among them are:

- 220-80 *Abies veitchii* (Veitch fir)
- 78-87 *Lagerstroemia* 'Muskogee' (Muskogee crape myrtle)
- 168-85 *Corylopsis* 'Spring Purple' (spring purple winter hazel)
- 124-81 *Ilex fargesii*
- 1533-56 *Firmiana simplex* (parasol tree)

Some of the more noteworthy new accessions for the first three months of 1991 were:

- 13-91 *Nothofagus solandri* var. *cliffortioides* (Fagaceae - oak family): a fine-textured, broad-leaved evergreen tree from New Zealand; donated by Sweetbrier Nursery of Kirkland, Washington, to replace our only specimen which was lost in the December 1990 storm.
- 42-91 through 53-91 *Ilex verticillata* (Aquifoliaceae - holly family): deciduous holly cultivars, including Afterglow, Aurantiaca, Cacapon, Harvest Red, Hopperton, Red Sprite, Shaver, Sparkleberry, Sunset, Winter Red, and assorted male pollinators; donated by Simpson Nurseries, Vincennes, Indiana.
- 61-91 *Boehmeria biloba* (Urticaceae - nettle family): a small shrub without the stinging hairs common to the family and with beautifully quilted foliage. See it in the entry court of the Center for Urban Horticulture; received from the Holden Arboretum, Mentor, Ohio.
- 72-91 *Phoebe forrestii* (Lauraceae - laurel family): a small, broad-leaved evergreen tree of unknown hardiness; collected at 9,000 feet elevation in Yunnan Province, China, by Lord Howick of Great Britain.

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Christina Pfeiffer is the horticulturist for the Washington Park Arboretum.

Timothy Hohn is the curator of living collections, University of Washington Center for Urban Horticulture and the Washington Park Arboretum.

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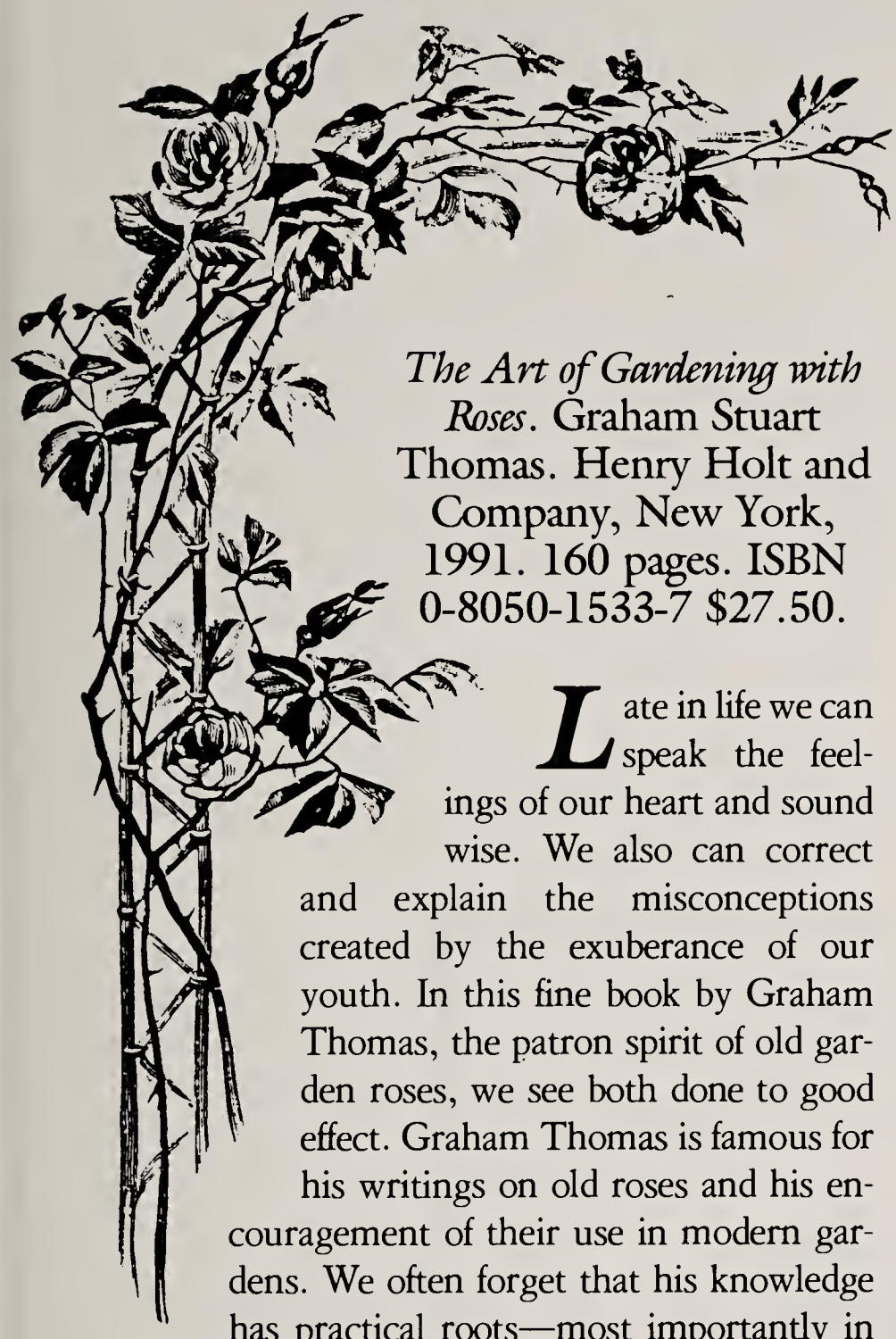
# Book Reviews



*The Art of Gardening with Roses*. Graham Stuart Thomas. Henry Holt and Company, New York, 1991. 160 pages. ISBN 0-8050-1533-7 $27.50.

Late in life we can speak the feelings of our heart and sound wise. We also can correct and explain the misconceptions created by the exuberance of our youth. In this fine book by Graham Thomas, the patron spirit of old garden roses, we see both done to good effect. Graham Thomas is famous for his writings on old roses and his encouragement of their use in modern gardens. We often forget that his knowledge has practical roots—most importantly in the Mottisfont Abbey Rose Gardens that he created from 1972 on. Here he takes us on a pictorial tour of his creation, showing his plant choices and the simple themes that guided his efforts.

This is no cold, analytical study of designs, spaces, and principles—it is bright photographs that demonstrate the intended effect with a visual tour. The text is at a minimum and is only used to explain the plant ''tricks'' used to create desired visual effects. More than anything, I was left with a feeling that I had taken a walk through the garden with Mr. Thomas while having a delightful conversation about it.

We speak too much of specialized gardens—perennial borders or rose gardens—as if the monoculture of farms should also govern our own gardens. Despite his long advocacy of planting roses in mixed beds, Graham Thomas's writings have primarily been about roses and their growth. I know of many people who have been misled by these books to grow gardens almost exclusively filled with old garden roses. It is far better to use one plant to cover up the short-comings of another, or to give us pleasure when others have faded into the background. This is especially true of old garden roses that often have magnificent but short blooming seasons. In this book, Graham Thomas shows how he plants a rose garden with so many other supporting plants as to make a garden for all seasons.

Here in the Pacific Northwest we are especially fortunate to have a climate that enables us to grow all that Thomas can in England, and his book is written so as to be accessible to any gardener. *The Art of Gardening with Roses* will richly reward people who allow it to work its way into their heart.—Stephen Herold

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Stephen Herold has been a Northwest gardener since he was five years old. After earning two graduate degrees from the University of Washington, Herold worked as a nurseryman at Tillinghast Seed Company in La Conner, Washington. He did research on breeding species and old garden roses at his Rambling Wild Rose Nursery. Stephen Herold lives in Seattle where he continues his research.

*Bold Romantic Gardens—The New World Landscapes of Oehme and van Sweden*. Wolfgang Oehme and James van Sweden with Susan Rademacher Frey. Acropolis Books Ltd., Reston, Virginia. 1991. 310 pages. ISBN 0-87491-950-9 $59.95.

Exhilaration is the feeling that many wild, natural landscapes evoke. This is especially the case where the site is open and expansive, with no visible boundaries. The landscapes of Oehme and van Sweden bring a large measure of that untamed wildness into the gardens they design. Their new book, *Bold Romantic Gardens*, could be placed on the coffee table because of the beautiful large-format photographs of gardens they have designed. But it is also filled with an informative text that covers design issues and practical horticultural information.

Their gardens are characterized by the use of ornamental grasses and herbaceous perennials. The ornamental grasses include large-scale plants arranged in sweeping drifts. By mid-summer these form towering green waves that add movement and mystery to their gardens. Planted with the grasses are equally large drifts of herbaceous flowering perennials. With both the grasses and the flowering

perennials, each drift contains only one variety of plant, yet the drifts are skillfully placed to blend and weave into a soft, natural looking pattern.

In the back of the book, there is a glossary of favorite plants with useful technical information on each plant. Incidentally, many of the flowering perennials included here are excellent butterfly-attracting plants, as well as being drought tolerant once established.

The concern for the state of our environment gets a lot of coverage in the news these days, leading to an increased appreciation of natural areas. This has opened the door to re-evaluating our existing approach to garden design and choice of plant material. The old models are not as satisfying and new models are hard to find; this is where the book has a real contribution to make. It is a new and very bold proposal for garden design that has years of solid experience to back it up. It also could serve as a stimulus to a discussion of new ways to garden and new ideas on design. You might even want to borrow a few ideas to try in your own garden from this beautiful and thought-provoking work.—Mary Booth

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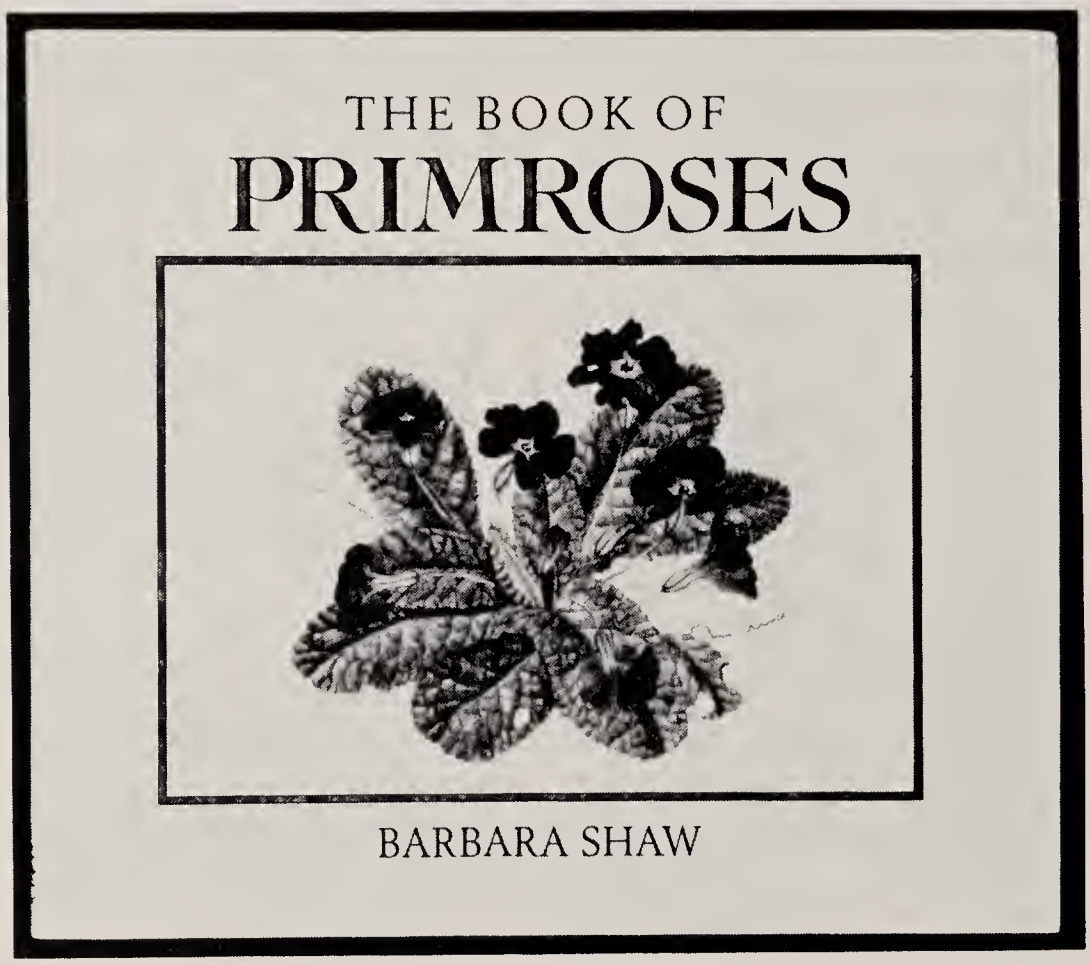
Landscape architect Mary Booth is an officer of The Arboretum Foundation. Although her term on the *Arboretum Bulletin* editorial board has expired, we appreciate her contributions to establishing a color cover fund, and look forward to future articles. Mary recently contributed to *Butterfly Gardening: Summer Magic in Your Garden*, by the Xerces Society and Smithsonian Institution (published by Sierra Club Books).

# New on the Shelves of the Elisabeth C. Miller Library

**by Valerie Easton**




American Forestry Association. *National Register of Big Trees*. Washington, D.C.: American Forestry Association, 1990. No ISBN.

Cox, Peter, and Kenneth Cox. *Cox's Guide to Choosing Rhododendrons*. Portland: Timber Press, 1990. ISBN 0-88192-181-5.

Fowler, Cary, and Pat Mooney. *Shattering: Food, Politics, and the Loss of Genetic Diversity*. Tucson: University of Arizona Press, 1990. ISBN 0-8165-1181-0.

Grenfell, Diana. *Hosta: The Flowering Foliage Plant*. Portland: Timber Press, 1990. ISBN 0-88192-188-2.

King County Environmental Division. *Sensitive Areas Map Folio*. Seattle: Department of Parks, Planning, and Resources, 1990. No ISBN.

Kusler, Jon A., and Mary E. Kentula, editors. *Wetland Creation and Restoration: The Status of the Science*. Washington, D.C.: Island Press, 1990. ISBN 1-55963-044-2.

Malitz, Jerome. *Personal Landscapes*. Portland: Timber Press, 1989. ISBN 0-88192-131-9.

Moore, Charles W., William J. Mitchell, and William Turnbull Jr. *The Poetics of Gardens*. Cambridge: MIT Press, 1988. ISBN 0-262-13231-1.

Rodgers, Marc. *Saving Seeds: The Gardener's Guide to Growing and Storing Vegetable and Flower Seeds*. Pownal, VT: Storey Communications, 1990. ISBN 0-88266-634-7.

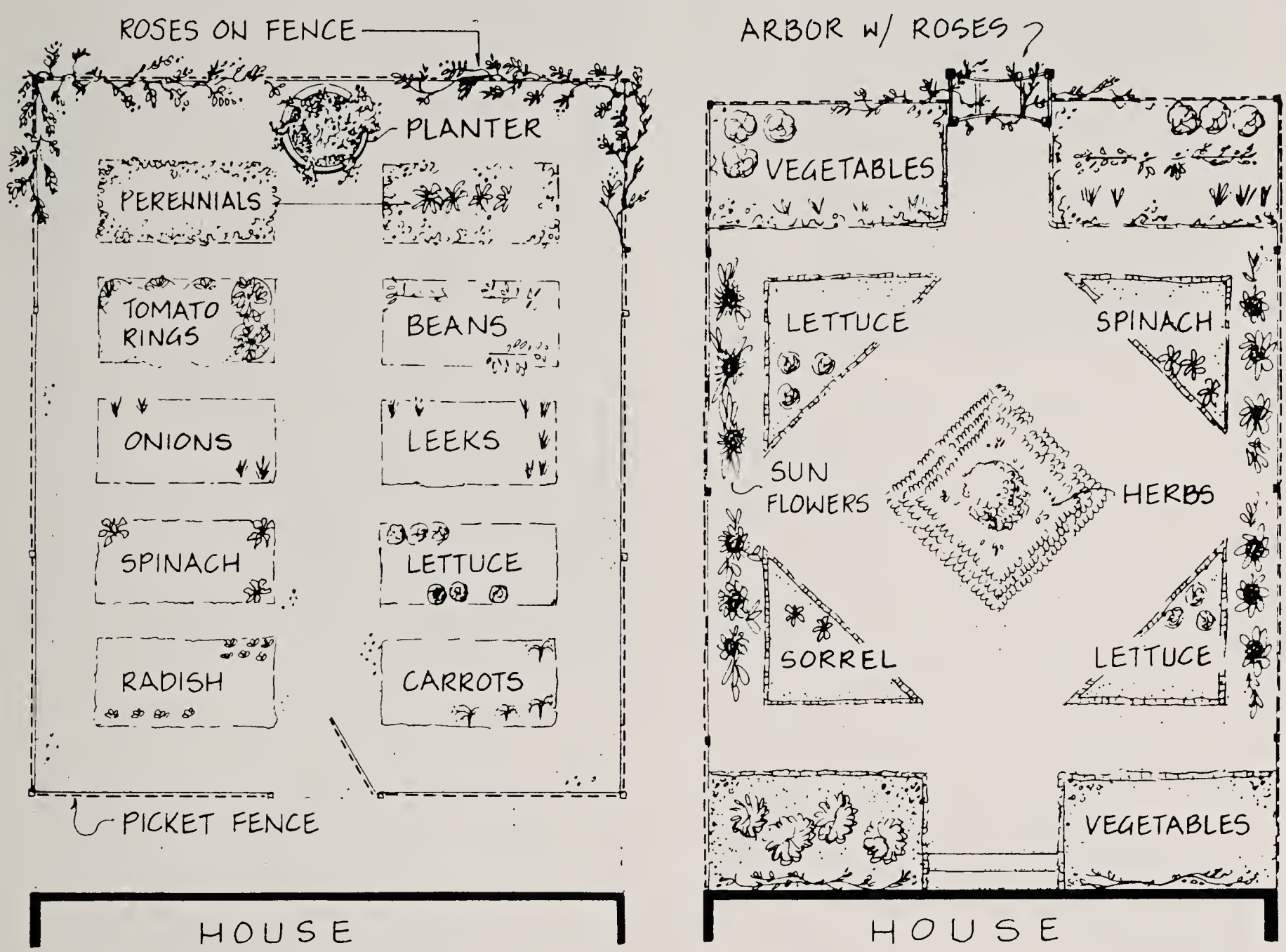
Shaw, Barbara. *The Book of Primroses*. Portland: Timber Press, 1991. ISBN 0-88192-191-2.

Xerces Society in association with the Smithsonian Institution. *Butterfly Gardening: Creating Summer Magic in Your Garden*. San Francisco: Sierra Club Books and the National Wildlife Federation, 1990. ISBN 0-87156-615-X.

All of these books can be found in the Elisabeth C. Miller Library, Center for Urban Horticulture, University of Washington, Seattle. Library summer hours: Monday to Friday, 9 a.m. to 5 p.m. (closed Fridays in July and August).

# For Further Information

**by Valerie Easton**




DECORATIVE VEGETABLE GARDENS FOR THE FRONT

*From* The Front Garden *by Mary Riley Smith*

The making of gardens—conceptualization, design, planting, hardscapes, plant combinations—needs to be considered even more carefully than usual when designing and developing a water-efficient garden. Sources of information on water conservation in the garden appear in the winter issue of the *Arboretum Bulletin* [53(4): 25]. But once the gardener has mastered the techniques of creating an un-thirsty garden, these broader design issues still remain. Several newer books are particularly instructive and inspirational on the art and science of garden making.

Plant combinations in color, texture, and form are the subject of a beautifully photographed new book by Rosemary Verey, *The Art of Planting* (Boston: Little, Brown & Co., 1990. ISBN 0-316-89976-3). Special emphasis is put on successful combinations throughout the seasons; for early spring flower and scent, *Helleborus foetidus* surrounding *Osmanthus delavayi* is suggested, whereas in fall, leaf color and texture is emphasized in associations such as *Iris foetidissima* 'Variegata'

growing through *Houttuynia cordata* 'Chameleon'. Ms. Verey is a superb colorist and goes beyond the traditional mixed border combinations to suggest plantings for damp sites, low maintenance areas, woodlands, and containers. You might buy this book just for the photographs, but read it cover to cover for its creative combinations, color sense, and plant wisdom.

Less instructive, but equally lovely to look at, is *Contemplative Gardens* by Julie Messervy (Howell Press, 1990. ISBN 0-943231-26-4), a photographic essay on the garden as refuge. Centuries-old Moroccan mosque gardens, stands of Japanese timber bamboo, and urban pocket parks show the array of design possibilities around the world and throughout history. The text emphasizes the role of the garden as a place for reflection and refreshment, and how this has been achieved through diversity of design elements and traditions.

Another new book with a worldwide perspective is *Gardens of the World: The Art and Practice of Gardening*, Penelope Hobhouse and Elvin McDonald, consulting editors (New York: Macmillan, 1991. ISBN 0-02-583127-5). This is the companion volume to the Public Broadcasting System series of the same name featuring Audrey Hepburn. Famous gardens worldwide are discussed in terms of style, function, plantings, and design, by well-known horticulturists, including Anne Lovejoy. Her chapter on flower gardens includes advice on the lessons to be learned from exceptional gardens, as well as analysis of gardens in England, France, and the United States. Other chapters on country gardens, Japanese gardens, formal rose gardens, and bulb gardens, etc., are useful not just for their glimpses into some of the world's most famous and lovely gardens, but for inspirational analyses that broaden our concepts of the garden and its possibilities.

*Beds and Borders: Traditional and Original Garden Designs*, by Wendy B. Murphy (Boston: Houghton Mifflin, 1990. ISBN 0-395-51759-1) liberally translates the concept of these two most traditional garden elements. This is really a style book, beautifully photographed, for a newer gardener. Planting and design basics are given, but most interesting are ideas for a variety of garden areas, including edible plant beds, urban beds, woodland gardens, and waterside plantings. Most tempting are examples of green gardens, looking cool and lush, with plantings of hosta, saxifrage, and strawberry geraniums.

In 1870, Frank J. Scott, one of America's earliest landscape architects, wrote: "A smooth closely shaven surface of grass is by far the most essential element of beauty on the grounds of the suburban house." Mary Riley Smith in her new book, *The Front Garden* (Boston: Houghton Mifflin, 1991. ISBN 0-395-55237-0) shows beautiful and functional alternatives to this high-maintenance, water-thirsty tradition of front yards, along with the "peculiarly American phenomenon" of foundation plantings. Chapters on evaluating an existing garden, how to provide privacy, and the creation of transitions between driveway, sidewalk, and front walk are useful. Most interesting are the examples, with photographs and plans, of successful front gardens in a wide range of styles, including a perennial garden in Vancouver, British Columbia; a Massachusetts woodland garden; and Rosalind Creasy's lush and abundant front garden of flowers and edibles. In an era of resource conservation, *The Front Garden* can help us to re-think our garden priorities and aesthetics.

Now, if after all this inspiration you want to learn more about sources of plants, horticultural education, gardening clubs and societies, or any of a multitude of other gardening topics take a look at the new *NW Washington Gardeners' Resource Directory* by Stephanie Feeney (second edition, Bellingham, Washington: Whatcom in Bloom Garden Society, 1991, $10.00). Area-wide plant sales, sources of organic garden products, locally sponsored garden tours (including a fall 1991 Van Dusen Botanical Garden tour to visit English country houses!), and an excellent list of specialty nurseries are among the current listings gathered in this directory. Order from Stephanie Feeney, 59 Strawberry Point, Bellingham, WA 98226, or call her for a source near you at (206) 733-4461.

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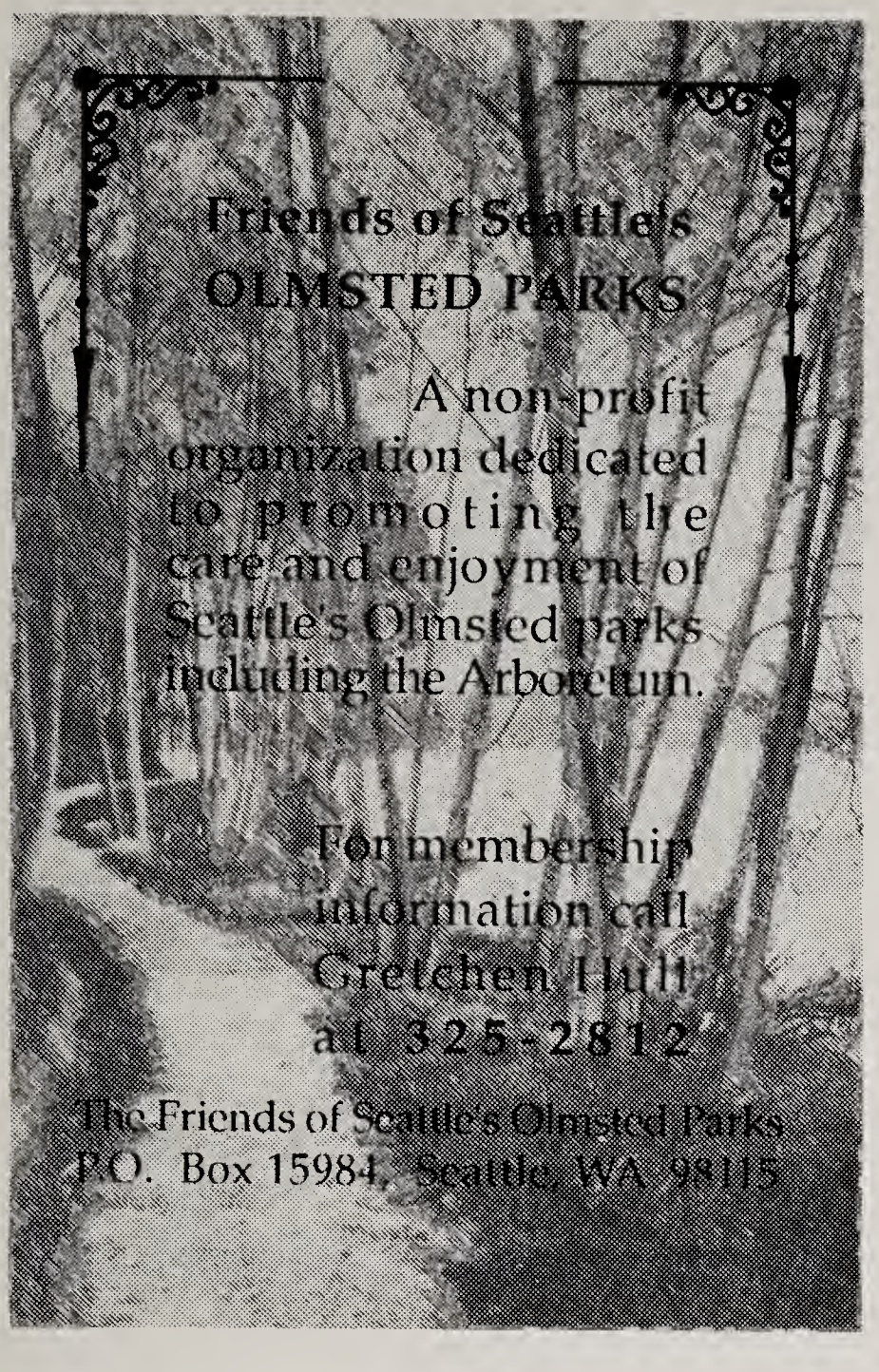
Valerie Easton is a librarian at the University of Washington's Center for Urban Horticulture. She is book review editor of the *Washington Park Arboretum Bulletin*.

As of June 1, 1991, the Elisabeth C. Miller Library started a small lending collection of books and journals available to registered borrowers. This one-year pilot project is funded by the Northwest Horticultural Society and the Rare Plant Group of the Garden Club of America. Please call the library for information: (206) 543-8616.



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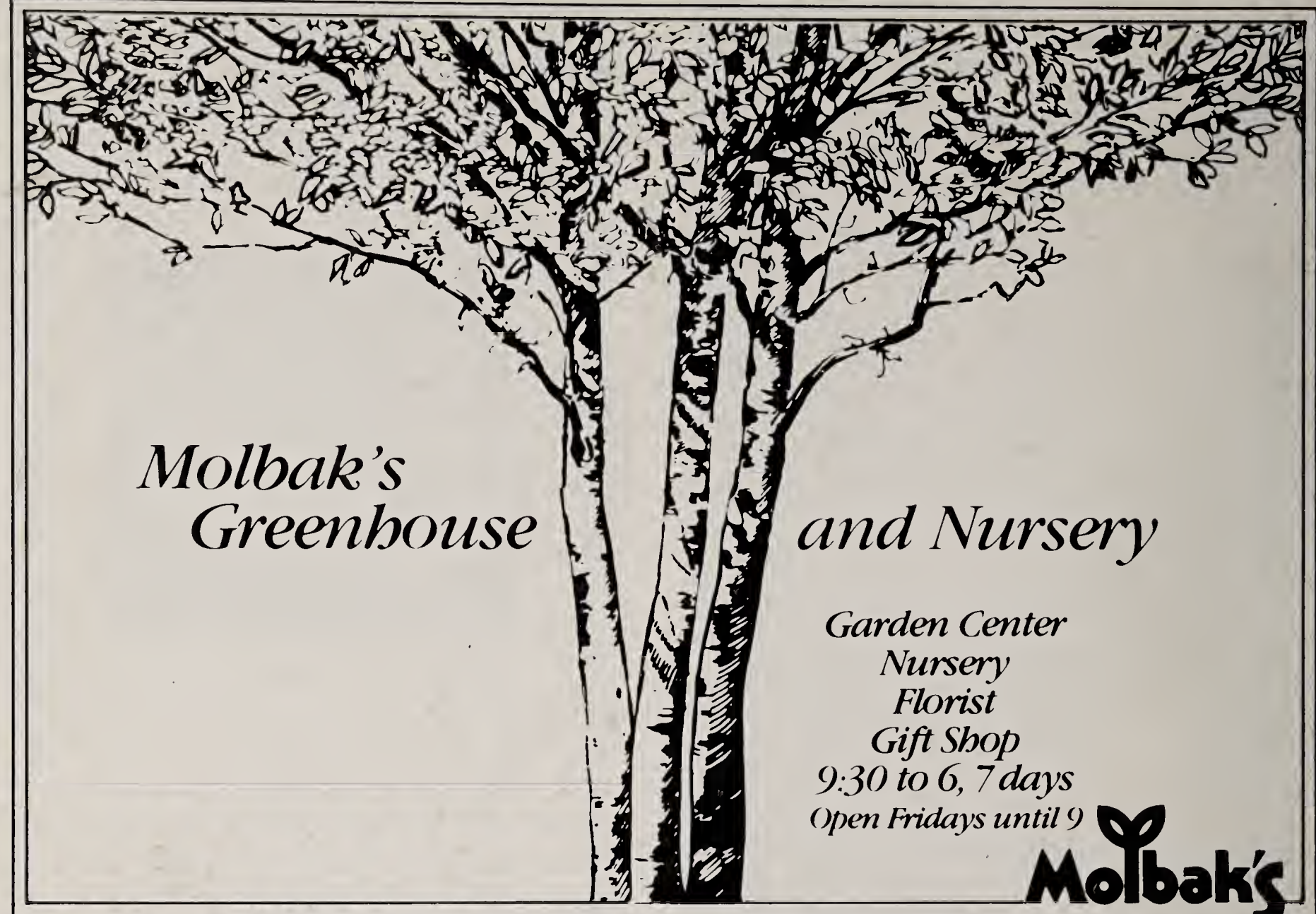

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